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ORIGINAL ARTICLES.

THE TREATMENT OF SALPINGO-OVARITIS BY ELECTRICITY.

Being a paper prepared for the Gynecological Section of the American Medical Association Meeting at Newport, June 27, 1889.

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The electrical treatment of fibroma which I originated has made great strides despite the railings of charlatans and incompetent persons; it is not necessary to refer to this subject again, because it is a child that will grow of itself, and is amply able to take care of itself. To-day I invite your attention to a subject of equal interest, I mean the treatment by electricity of salpingo-ovaritis, and I sincerely hope that it may have the same useful future, more restricted perhaps, because at present it is restricted to a certain number of cases, but in any case worthy of your consideration.

Salpingo-ovaritis is a disease which has long been recognized, but under names which I have changed very often: *Phlegmon, pelvic-peritonitis, lymphangitis, adeno-lymphangitis, cellulitis, peri-metritis, para-metritis, peri-uterine, phlegmasia, etc.;* all of these titles being used to picture a disease originating in the lymphatics, in the cellular tissue, or in the peritoneum, according to the special pathological views of the individual describing the malady. Laparotomy had the advantage of fixing the diagnosis precisely, by demonstrating that lesions of the ovary and of the tube were almost constant factors, and that these inflammations almost always took origin in the lining membrane of the uterus, and from there spread to the adnexa, the cellular tissue, and the peritoneum. At the commencement of my practice I fell into the common pathological error, which I hasten to correct to-day: But one fact is beyond dispute, and that is that the conditions which I then treated as *phlegmon*, and *peri-metritis*, and which concealed a *salpingo-ovaritis*, does not militate in the least against my claim to priority in the electrical handling of the disease under discussion.

Since 1882 I have treated all cases that come to my clinic by electricity, whether suffering from tumors, from endometritis, or peri-uterine phlegmasia. Look for a moment at the thesis of my assistant, Dr. L. Carlet, which appeared in July, 1884,[1] and which I myself revised thoroughly: "One pole (the negative) is that of *denutrition par excellence;* it is suitable, therefore, not only for tumors, but for sub-acute peri-uterine inflammations (circumscribed), without fever, which are connected with the uterus, and which considerably disturb its functions." Farther on, you may read with profit the clinical histories of twenty cases[2] of peri-uterine phlegmasia, complicating uterine tumors, which were treated with electricity. I quote as follows, (page 110). "This observation is of the greatest importance, because it shows the value of intra-uterine galvano-caustique in moderate doses, in causing a resolution of sub-acute peri-metritis." Further on I wrote: "This observation (page 117) should be of great importance, since it shows, first, that intra-uterine galvano-caustique, badly done, or made unduly painful, may set up multiple accidents, and here, the peri-uterine phlegmasia is clearly due to the last application. On the other hand, this observation also proves, that hysterometry, badly done, is dangerous, but when well done is never so, even in the sub-acute stage of peri-uterine phlegmasia; this same malady, indeed, has been treated with uterine faradization (that is by another form of hysterometry), during the convalescent stage of a phlegmon of the broad ligament, which resulted in a complete cessation of symptoms after a very short treatment."

From 1884 to 1887, my experience has enlarged coincidently with greater skill, boldness in operating, and at the Dublin Congress (August, 1887), I discussed the question under an entirely new caption. (See *Bulletin général de Thérapèutique*, of September 30, 1887, and *British Medical Journal*, of November 19, 1887). To-day the names have changed, but the ideas are the same, and I propose giving you the results of my electrical treatment. I shall speak no more of *peri-metritis*, but of *salpingo-ovaritis*, whether complicating a pelvic peritonitis or not. The atti-

[1] Du traitement électrique des tumeurs fibreuses de l'uterus d' apres la méthode du Dr. Apostoli par le Docteur Lucien Carlet. Paris. Octave Doin, Editeur. 1884.

[2] See observations (op. cit.) on pages 74, 81, 85, 94, 108, 114, 120, 123, 124, 151, 169, 196, 205, 214, 216, 225, 227, 232, 236, 241.

tude of those doctors who occupy different and opposing ground, is very curious, and may, briefly, be described as follows: the large number, following in the footsteps of a wise ancestry, when confronted with a salpingo-ovaritis, exclaim, "Do not touch it." They ignore all intra-uterine interference, relying upon poultices and revulsives. Their success is variable. The cavity of the uterus is, for them, a *noli me tangere*, which they religiously avoid. Others, on the contrary, comprising a small number of surgeons, anxious of statistical fame, open the abdomen of every woman having an undue sensitiveness of the adnexa, either for exploration or castration. Here the abuse cries out for reform, and if, under some circumstances, the services of the surgeon are indispensable, yet here, one may justly exclaim with indignation, that in many cases, surgery, out of selfishness, consigns a woman to a future of sterility. The true path, gentlemen, lies between the two extremes. If, on the one hand, doctors are over-timid, and count too largely upon nature to cure certain diseases, which almost never, are spontaneously cured, on the other hand, surgeons commit a fault quite as reprehensible, by hasty operations; for we know now that castration sometimes kills, and does not always cure, forgetting that, clinically speaking, these cases are frequently curable by more simple and conservative means, without causing an irreparable physical and moral shock to the woman.

From the very commencement, despite the prejudice from all sides, my treatment of these cases has been absolutely and entirely the intra-uterine electric. This idea, at first theoretic, is to day a fixed fact, thanks to pathological investigation which demonstrates that almost all cases of peri-uterine phlegmasia or salpingo-ovaritis, have their starting point in an endometritis, which is often the posthumous witness of the secondary lesion of propagation, cleanse the uterus, make use of intelligent intra-uterine antisepsis, cure the endometritis, and provoke healthy intra-uterine derivation—such are the general considerations that have guided me on to such results. These are the reasons why, at the very first, I swept away the existing prejudices against an interference with the uterine cavity, and why I went at once to the bottom no matter what might be the extent of the phlegmasia. It is true, I associated, in this therapeusis, faradization with galvano-chemical caustique. Faradization, in the form of a current of tension, calms the nervous system, diminishes excitability and relieves pain; but, of itself, is often insufficient to arrest the acute phlegmasia. The dynamic action in the commencement of inflammatory conditions is purely calmative, and will aid in the resolution of old exudates. I have associated three orders, of procedure, which, in inverse order of merit, are faradism, intra-uterine galvanism and vaginal peripheric galvano-puncture. I will briefly sum up my views of each.

1. Faradization, under the form of a current of tension, made by the long thin wire, calms the nervous system, moderates its excitability, assuages or cures pain, but is often powerless to arrest an acute phlegmasia; its action is purely dynamic, and it acts, as opium acts, during early inflammatory stages, but is powerless to arrest the evolution of inflammatory processes. The current (faradic) of tension is the only one tolerable and indicated in acute and subacute forms. A current of quantity is less efficacious and less tolerable, except in rare cases of chronic exudates where, in acting upon the interstitial circulation, it aids reabsorption to a certain extent. The electrode should generally be the bipolar, to better localize the electric action, either in the vagina or in the uterus. All other things being equal, the uterine application is by far the most useful. The application should be in moderate doses without shock, and more gentle as the inflammation is more active. The séances should be daily at first, lasting from five to twenty minutes, and the dose progressively augmented as the patient can bear it.

2. Galvanization, or rather intra-uterine chemical caustique, is much more powerful than faradization, and will often be sufficient of itself in cases of ovaro-salpingitis. It is a most excellent way of changing in part or in whole the entire lining membrane of the uterus, and of setting up peripheric changes by derivation. The faradic current excites the nervous and muscular systems after the manner of a mechanical force, by interruptions and shocks. The galvanic current, however, is a physical and chemical force, at once caloric and trophic, and brings each of its factors into action separately or together as desired. All binary compounds and those of greater complication will tend to decomposition, and this decomposition, called electrolysis, will be in proportion to the electric energy given out, and to the length of time of the application. This interstitial breaking up of the elements, which will be preceded by a different orientation in the polarization of the organic molecules, tends, on the one hand, to bring around the positive pole the acids and oxygen, while the bases and hydrogen go to the negative pole. This serious molecular action ought to be sufficient for an intelligent theory of the effects of the galvanic current, but recent experiments which we have made place these facts upon an indisputable basis. My friend Laguerrière and myself have found that the galvanic current sent through culture media of pathogenic microbes is *germicidal*, thus confirming what I said long ago, that this current was *antiseptic*, and would *attenuate* or *sterilize* certain conditions of germ change. Applied in a given region the galvanic current acts locally and generally; each

pole has its undivided caustic action—the one acid, the other basic. The current is felt in the interpolar zone, engendering trophic changes, and tending to the resolution of certain pathological conditions.

The doctor of to-day who has not kept apace with the advance of gynecological science, lauds to his utmost the curette, which first saw the light in France, but has long since fallen into desuetude in the land that originated it. Without wishing to discredit a surgical procedure of value in certain conditions, the superior advantages of the intra-uterine galvanic current are beyond dispute.

(*a.*) It is simple and easy of application, requiring no assistant, and may be used by any one, no matter how little experience he has in gynecology.

(*b.*) Being but slightly painful, chloroform is not needed, this being only demanded in certain cases of puncture.

(*c.*) It is valuable among working women, as a short period of repose alone is necessary after the application, instead of hours and perhaps days in bed.

(*d.*) It can be gradually and gently applied by progressively increasing the strength, and is less brutal than the curette.

(*e.*) It is not contraindicated in any acute case of inflammation—the sole caution being to use extra care, and to increase the strength only as the patient is able to bear it.

(*f.*) It is an agent which, instead of being blind, obeys in a precise and mathematical manner the hand applying it; that is to say, one can measure and administer it and at the same time have an exact record of the amount of cauterization produced, to which three things conduce: the general intensity made use of, the density of the active electrode, and the duration of the application.

(*g.*) It is an active force, which will produce an active result localizable at will, and which may be concentrated upon any part of the uterine lining membrane desired.

(*h.*) It is absolutely harmless if proper antiseptic or aseptic precautions are made use of.

(*i.*) According to the intensity and duration its action can be varied, and also according to the active pole made use of; it may be made acid by using the positive pole, and basic by using the negative pole.

(*j.*) Apart from the curetting action of the chemical galvanism, which one can easily see, there is a more profound action trophic and vital, and which is propagated along the whole organic circuit between the two poles. Thanks to this last consideration, above all in the treatment of salpingo-ovaritis, this chemical galvanism has a power far above surgical curetting, chiefly in reaching the uterine parenchyma and adnexa.

(*k.*) If surgical *râclage* often results in frequent returns of the disease, causing anatomical and functional troubles which it hoped to combat, I can affirm that these results are much less frequent by the electrolytic treatment, which may require several séances to produce a lasting effect, but which good results, as I have had reason to observe in my clinic, last for many years after the cessation of all treatment.

The operative technique is already sufficiently well explained in my various brochures upon the electric treatment of fibroma and endometritis. I shall content myself with giving you merely the salient features of the treatment of ovaro-salpingitis. The positive pole always causes less congestion than the negative, but the latter is more valuable to promote resolution. The positive pole should be used generally in the commencement, and once having passed the first stage of toleration, the negative pole should be substituted. The dominant preoccupation which should make us cautious in treating salpingo-ovaritis, and which is sometimes difficult of recognition, is the fear of finding ourselves in the presence of a pyosalpinx, which a large dose of galvanism would aggravate; so, when in doubt, begin very gently with a mild current to test the susceptibility of the uterus and peri-uterine tissues, then increase with the patient's tolerance and according to clinical indications. One may begin with 20 to 40 milliampères. If the intolerance is great, respect it and do not increase; if well tolerated increase to 100–150 milliampères. Here clinical diagnosis must be called in to differentiate between hysterical intolerance, that need not be heeded, and an inflammatory intolerance which must be respected. The sittings should not be too frequent. In the initial treatments they are frequently followed with a reaction more or less intense, which may last several days; generally we should wait until calm is reëstablished. Sometimes the séances may be given once or twice a week, sometimes only every fifteen days. The same reasons must guide the doctor as to the length of a séance; sometimes they should last three minutes and sometimes five to eight minutes.

3. I now come to the third division, the most efficacious of all, the penetration with the galvanic current of one of the vaginal cul-de-sacs at the nearest point of the inflamed region. I mean *vaginal galvano-puncture*. There are two clinical indications, the one of *choice*, the other of *necessity*. The indication of choice presents itself when one finds himself in presence of a salpingo-ovaritis which has not been sufficiently ameliorated by the intra-uterine galvanism. It is necessary then to penetrate the mass in the point the nearest possible to the diseased spot, in order to lose nothing of electric force, which now should seriously concern itself with the suffering point. Theoretically the application, well made, should be most efficacious, and no doubt rests in my mind that such is

the case, for the reply of all the patients who have submitted to this plan is that the punctures were much more painful but much more efficacious, because often one puncture gives more relief than many simple intra-uterine applications. The indication of *necessity* for galvano-puncture is when a fluctuating tumor impinges upon the vagina, and which should be drained antiseptically through the vagina.

Already many years ago I gave the rules for the essentials of galvano-puncture. I will only now cite the chief points:

(*a.*) Here, as in all electrical treatment, be it faradic or galvanic, one should precede everything with thorough antisepsis, preceding and following every operation with an antiseptic vaginal irrigation, either of sublimate, carbolic acid, creoline or naphthol. Between the séances we will do well to close the vaginal cavity with iodoform gauze (or sublimate or salol gauze), to insure perfect asepsis, as well as to prevent sexual congress, which should be suspended.

(*b.*) With the preceding electrical treatment it is not necessary to remain in bed. I exact from my patients only one or two hours of repose after galvano-caustique, without denying, however, that a longer period might be beneficial. Galvano-puncture, however, requires at least two or three days of rest in bed after each puncture.

(*c.*) The trocar carrying the current should be the smallest possible, but of sufficient resistance not to be easily broken. Steel is the best, because it penetrates easily.

(*d.*) The chief point is the depth of the puncture. A slight puncture of *a half centimetre*, as an average, suffices to make a door of entrance for the current in the region which it is to traverse. Deeper punctures do not suffice any better to attain such an end; on the contrary, as I have seen, they may be dangerous. I proscribe all punctures over 1 centimetre.

(*e.*) Where make the puncture? Questions of choice and necessity here come up. The choice is to puncture as near as possible the diseased portion, but necessity forces us to avoid at all cost the anterior cul-de-sac on account of the bladder. The lateral, and above all the posterior regions are the most favorable for the puncture. I make them oftenest in the posterior cul-de-sac, in the middle of the pouch of Douglas, directing the axis of the instrument toward the uterus in order to avoid the rectum.

(*f.*) This operation, much more painful than galvano-caustique, is often tolerated by certain women, but in others chloroform will be required.

(*g.*) I *never use a speculum* in this operation, which can only be well and delicately carried out as follows: One fixes at first the exact length of the puncture, by turning the screw and advancing the steel point to the required length beyond the celluloid, then, having fixed with the index finger the exact point to be punctured, and having made sure that there is no arterial pulsation, one slides the celluloid up to the point, which serves as the conductor for the trocar, which is then plunged in.

(*h.*) The number of punctures demanded is variable. Some cases of hydro- and catarrhal salpingitis yield to one puncture, some require three or four, and tubercular tubes even more.

Generally these cases require much longer periods of intermediate repose than cases of galvano-caustique, because at their commencement they are often followed by a severe reaction, which may last many days. The application should not be renewed until all of the symptoms have disappeared.

(*i.*) As to intensity and choice of poles I repeat what I said just now when speaking of intra-uterine galvanization. The intensity will vary from 20 to 50 milliampères. To go beyond this is to go beyond the point of tolerance, and chloroform should be used. To create a temporary vaginal fistula 100 to 250 milliampères will be required.

(*j.*) The puncture should generally be positive at first, because it is more tolerable and less exciting than the negative. This latter is employed when a more powerful action is demanded. Especially in presence of a fluctuating tumor pointing into the vagina, in which a fistulous tract is to be made and vaginal drainage established, is the negative pole demanded.

(*k.*) Should febrile excitement arise, all treatment is to be suspended. One may think himself in the presence of a pyosalpinx, if it points into the vagina, and a puncture is not contraindicated; but if it is high up, not accessible, and far from the vaginal cul-de-sac, a deep puncture, which might cause an evacuation into the cavity of the peritoneum of the sac, is to be avoided. It is here that surgery must step in to carry out its legitimate functions.

My clinical experience, which is now seven years old, has given me many cases of salpingo-ovaritis, which I hope later on to tabulate. I shall content myself now with some results of my treatment. Every salpingo-ovaritis will generally be suitable for appropriate electrical treatment, and this should be the conservative method of choice; it is sovereign in catarrhal salpingitis, only calmative in tubercular salpingo-ovaritis, and in certain pus tubes may be of great service. Whatever electric treatment is made use of, it should be continued until the patient pronounces herself cured of her symptoms, and until an examination has satisfied us that the anatomical change is considerable. Surgical interference should never be resorted to until after all electrical resources have been exhausted. Castration, which morally and physically mutilates a woman after an incurable fashion, and only cures radically in a fourth

or fifth part of the cases, should be only an operation of necessity, never of choice, and should be regarded as a last resort. Electrical conservative therapeusis, harmless, easily appled by any one, and which does not pretend to cure every case of salpingo-ovaritis, finds its greatest triumph in rendering a *subsequent conception* possible, as I have seen in several of my patients. I will not harrass you with the details of all of the cases that have been to me for treatment, but will content myself with giving you full details of two typical cases, in one of which there were two subsequent conceptions, the other remarkable clinically, and though long it is full of interest, demonstrating that electricity, persisted in and rightly used, may be of the greatest value in the different troubles that may beset the same patient.

COMPLETE HISTORY.

Madame Sophie Edinger, æt. 34 years, living at 5 Rue de l'aqueduc, Paris, presented herself at the clinic of Dr. Apostoli, August 17, 1886.

Previous History.—Nullipara, neither pregnancy nor miscarriage. Born in Lorraine. Has lived at Paris for seventeen and a half years. Mother died at the age of 48 in consequence of a profuse uterine hæmorrhage, the cause of which was unknown. Menstruation easily established at the age of 11. Since its appearance it has been of the following regular type: Occurring at fixed intervals, the flow has lasted on an average six days, and has been *painless;* it has always been *very* abundant, and often accompanied by the expulsion of clots. At 13 and at 17 years of age, without an appreciable cause, the periods were suppressed for about two or three months, without other morbid phenomena. Slight, intermittent leucorrhœa.

Of a rather delicate and lymphatic temperament, the patient had several of the diseases of childhood, eczema of the head, and frequent attacks of gastritis which often caused vomiting of the food. At 28, a light attack of rheumatism, localized in the two arms, which lasted one week.

Married at 29 years of age. From the beginning of her marriage her health has been disordered. The most striking phenomena from the first were the menstrual troubles characterized by an increase in the quantity of the flow, by its more frequent occurrence, and by pain preceding the flow for one or two days and disappearing as soon as it was established. Her married life, then, was marked for five years by the appearance of a *true dysmenorrhœa*, very intense, which has persisted until to-day, and which often obliged her to go to bed. Usually the pain disappeared suddenly on the appearance of the flow.

Since her marriage her general health has also been disordered; she began to grow thin, and her appetite became capricious. This condition persisted for three years, during which time she worked, though with difficulty. For two years past (1884–1886) her condition has become progressively much worse. The pain, formerly intermittent and premenstrual, has become almost constant, interfering with the walk, making standing impossible, and localizing itself as a continuous dragging or tension in the right iliac region, radiating posteriorly to the lumbar region, and anteriorly to the right groin, involving further the entire corresponding thigh as far as the knee. This pain has increased greatly, without changing the condition topographically, at the time of the periods most of all, obliging the patient to take a forced rest.

For some months after the marriage the sexual relations were very painful. Then the pain disappeared, to reappear again two years ago with much greater intensity, finally making all sexual relations impossible. Intercourse also provoked and increased the pain in the right iliac region. The patient has never, up to this time (1886), had any pain in the *left* iliac region. *For eight months the patient scarcely left her bed*, attacked by pain so intense as to cause her to cry out involuntarily; this was accompanied by almost daily vomiting of sometimes alimentary, sometimes bilious matter. She grew thin more rapidly and her appetite became more and more perverted, while the digestion became more painful. The abdomen was extremely sensitive, and the pain was always localized on the right.

She was also decidedly constipated. The menstruation was at times transformed into a veritable metrorrhagia, an almost constant flow with an interval of only one week between the periods.

The patient was treated regularly by Dr. Mandet, who applied the usual classic treatment of emollients, milk *régime*, opiates, revulsives upon the abdomen, etc. It was at the instance of her physician that she came to consult us, on account of the total lack of success of the most varied and assiduous treatment that had been instituted.

Actual Condition August 17, 1886.—The patient is humble, impressionable, nervous, but not hysterical, so feeble, and suffering to such a degree, that she had to be brought to the clinic in a carriage and assisted upstairs. She is emaciated, without color, and exhibits a state of considerable suffering. On palpation the abdomen is painful, and sensitive in the two iliac fossæ, especially in the right. For a year it has been impossible for her to remain erect without an abdominal support.

The internal examination is difficult on account of an excessive sensibility of the uterus, and especially of the cul-de-sac. An inflammatory exudate entirely surrounding the uterus constitutes a single mass, adherent to the sacrum, to each side of the pelvis, and enclosing the uterus.

An examination shows at times in the middle of this total cellulitis, which envelops the uterus, a plane, subadjacent, more resistant and fibrous,

which indicates the presence of an interstitial uterine fibroid, localized especially at the right and anteriorly.

Diagnosis.—Peri-uterine and subacute inflammation with interstitial, subadjacent fibroid, and ovarian salpingitis. Pronounced retroversion. Sound measures 7 centimetres.

Treatment.—August 21, 1886. *First, intra-uterine negative galvano-caustic, 100 milliampères, for five minutes.* Two hours after the treatment the patient returned home.

September 9, 1886.—Patient reports that she has had a flow lasting twelve days, which began the day after the first treatment, and which has greatly fatigued her. This flow is probably due to the first operation (treatment), which was wrong. This was *negative* and ought to have been *positive*.. This flow was accompanied by an increase in the vomiting already existing. In order to calm the patient, she was given an *intra-uterine, bi-polar faradization of tension, with the fine wire, for five minutes*, and starting with to-day, in order, hereafter, to carry on this treatment simultaneously with the treatment of the uterus, *the bi-polar galvanization of the pneumo-gastrics was begun*, to alleviate the gastric phenomena, the most serious of which is the vomiting.

This galvanization is given at a dose of 5 to 12 milliampères, for five to fifteen minutes each time.

September 21.—First *positive, intra-uterine galvano-caustic* (made with the object of arresting the hæmorrhage), 175 milliampères, five minutes.

Sept. 30.—Second positive galvano-caustic.

Sept. 30.—Third positive galvano-caustic—*idem*—150°, five minutes.

The last period occurred Sept. 22, and lasted six days. The vomiting of food, which was incessant, and almost daily before the beginning of the treatment, has been overcome at the onset by the galvanization of the pneumo-gastrics, which has not only put her in a condition to tolerate the milk which she had been ordered to take, at the clinic, but also has again given her an appetite, almost unknown before.

October 7.—Re-commencement of the negative galvano-caustic in order to accelerate the absorption of the exudate. Second negative galvano-caustic, 80°, five minutes.

October 12.—Third negative galvano-caustic, 80°, three minutes.

It was necessary to discontinue the treatment after a sitting of three minutes, on account of the *mal au cœur* of which the patient complained. Strength is restored, the stomach performs its functions much better. Since the beginning of the treatment she has never vomited on the days of treatment, and in the intervals has vomited but rarely. For fourteen days there has been entire absence of vomiting. She begins to walk more easily, and with less pain, but still suffers when sitting. The constipation persists. She has constant numbness in the right leg. She is still obliged to keep her bed almost all the time, and only leaves it to come to the clinic.

October 14.—Fourth negative galvano-caustic, 100°, five minutes.

October 19.—Fifth negative galvano-caustic, 100°, five minutes.

Has had her menstrual period since this morning, but with much less pain. The complexion is clearer and the expression better.

October 21.—Menstruation continues; flow abundant, but there is no menorrhagia.

October 26.—Vomiting again on the 23d and 24th. Fifth negative galvano-caustic, 100°, five minutes.

November 4.—Sixth negative galvano-caustic, 150°, five minutes, badly borne.

November 6.—Seventh negative-galvano caustic, 60°, five minutes.

November 9.—Eighth negative-galvano caustic, 60°, five minutes.

The vomiting has quite ceased; only a slight nausea remains. The appetite and digestion are always better on the days of treatment; the day following she is sometimes not quite as well. There is an equal improvement on the part of the abdomen; it is less sensitive on pressure, and swells only when she is tired from walking. For fifteen days she has been able to sit up part of the day.

November 11.—Patient is menstruating and (a fact most characteristic in favor of her improvement) she has suffered much less than usual, and has not had to go to bed. She has been able to walk alone without support, a thing which formerly was impossible in this condition. She declares herself completely transformed.

November 11. Eighth galvano-negative, 90°, five minutes. An internal examination shows an appreciable change. The half of the exudate has disappeared, and on the right it has left bare the sub-adjacent fibroid, the diagnosis of which is emphasized to-day. The uterus begins to be movable, and can be slightly displaced.

November 20.—Ninth galvano-negative, 100°, five minutes.

November 27.—Tenth galvano-negative, 80°, five minutes. Since the beginning, each treatment is followed by an antiseptic vaginal injection, after the method of Van Swieten, and a tampon of iodoform gauze is left in the vagina.

November 30.—Patient has just had a return of her former painful symptoms, without an appreciable cause. This lasted eight days, and was marked by a reappearance of the old vomiting. Galvanization of the pneumo-gastrics, which produced immediate relief. The weight is increasing; without the clothing it is 118 pounds.

December 2.—Amelioration of the abdominal pain. No vomiting since November 30. Eleventh galvano-negative, 80°, five minutes.

December 4.—Twelfth galvano-negative, 60°, five minutes. The patient is becoming more intolerant of the action of the galvano-caustics, but each time she feels greatly relieved by it, and sleeps better the night following.

December 23.—Thirteenth galvano-negative, 80°, five minutes. Patient feels well. The gastric troubles have disappeared; she walks better, but is still unable to do her housework.

December 28.—On account of the intolerance which begins to be manifested for the galvano-caustic which, at the beginning, was well borne at 100°, and now is somewhat painful at 60° or 80°, and in order to hasten the cure—which may be considered as still in the rough—both anatomically and symptomatically, the galvano-punctures are begun.

First vaginal negative galvano-puncture at a depth of one centimetre in the right-lateral cul-de-sac, with a filiform trocar of steel, at 200° milliampères, five minutes. Patient under the influence of chloroform. Vaginal injection of sublimate solution 1–1200 before and after the séance, vaginal tampon of iodoform gauze. Patient remained at the clinic for six days without leaving her bed. Vomiting appeared the evening of the day she was treated and the following day, and was relieved by the galvanization of the pneumogastrics.

Menstruation occurred December 31, ten or twelve days in advance, of average quantity, though rather less than formerly. For the first time since her marriage the menses appeared *without pain* and without the formation of clots. A complete calm has followed the appearance of the menses. The patient has eaten with a good appetite and has recovered her power to sleep, which she had lost for a long time. In a word, she feels as if she were transformed, and she seems to have derived more benefit from this first puncture than fram all the preceding galvano-caustics.

January 4, 1887.—The patient left the clinic to return home. Since then her health has constantly improved. The following is a statement of the typical modifications which have been progressively determined from the 4th to the 22d of January, 1887:

1. Walking has become much easier. The patient is able to come to the clinic without the companion hitherto necessary. She is much less fatigued than formerly by the jolting of the carriage.

2. She is able now, for the first time, to do her housework, discontinued eighteen months ago.

3. Digestive functions good. She has more appetite, while the nausea and vomiting have ceased.

4. Parallel transformation, anatomically speaking. On examination the peri-uterine sensibility is less acute. The retrogression of the exudate makes rapid progress.

5. Restoration of all the functions, and notably considerable diminution of the abdominal pain.

Every two days she has had an antiseptic vaginal injection, and the tampon of iodoform gauze has been changed.

January 22.—Second negative, vaginal galvano puncture, to the right, at a depth of 1½ centimetres; made this time without chloroform. The pain limits the intensity to 50 milliampères, eight minutes. The patient did not remain at the clinic but returned home the same evening. Slept well and did not suffer. The menses appeared the next day, five days in advance, and for the second time without pain and less profuse.

January 25.—Antiseptic vaginal injection.

January 29.—Walking is still easier, patient finds herself "very light."

February 10.—The orifice made by the last puncture is closed. Third negative, vaginal galvano-puncture, at a depth of one centimetre, 60°, five minutes, without chloroform. Antiseptic injection, and vaginal tampon of iodoform gauze.

February 12.—Patient suffered for some hours after the last puncture, although she was able to go home that evening. She was rather more tired than after the previous punctures, and attributed this to the fact that the operation was done without chloroform.

February 15.—For the first time in eighteen months the patient has had sexual intercourse, which was effected without too much pain.

March 5.—Galvano-puncture without chloroform was attempted. Patient was unable to tolerate it, and after some seconds the application was discontinued. Nausea and efforts to vomit rendered the continuation impossible and unbearable.

March 8.—The evening following this aborted puncture there was a recurrence of the abdominal pain. The next day, March 6, menstruation began, for the first time in her life eight days late. Unlike the three last periods, the flow has been more abundant, painful, and accompanied by the expulsion of clots. The question arises, in view of the recent sexual relation and of the delay in the menstrual function, so abnormal, if this, as seems probable, was not a miscarriage? There was also a renewal of the digestive disturbance, but without vomiting.

March 19.—Fourth negative galvano-puncture, in the posterior cul-de-sac, under chloroform, 150°, five minutes.

March 22.—Patient remained in bed at the clinic 24 hours. She suffered a little after this puncture, but found herself again very much improved. From this date the patient, who has had three times a week antiseptic vaginal injections, and tampons of iodoform gauze, finds herself again progressively improved. One month after, the orifice made by the puncture had not closed. The uterus begins to be easily movable.

April 20.—For the first time in years the pain seated in the plane of the right iliac bone, and radiating posteriorly and anteriorly, has disappeared. Continued anatomical improvement.

May 3.—On examination the fibroid appears to-day very clearly marked, and the inflammatory exudate can only be perceived on deep pressure. The mobility of the uterus increases. Fifth galvano-puncture (negative) in the right lateral cul-de-sac, at a depth of one centimetre, 150°, five minutes, under chloroform.

May 5.—Patient vomited the evening of the treatment and the day following, due probably to the great amount of chloroform absorbed. She remained 24 hours at the clinic. Since the puncture the amelioration has been on the increase. Patient has continued to come to the clinic three times a week for the galvanization of the pneumo-gastrics, and to have the iodoform tampons changed.

June 4.—The following is a statement of the actual condition:

1. Patient has just taken a long walk without fatigue.

2. All spontaneous pain in the right groin has disappeared.

3. Menstruation in April and in May occurred, after a delay of two to four days, *without pain, and less profuse*, lasting five to six days. Slight *malaise* at the end of the periods.

4. The complexion is better, she has more color, and has lost the former deathly hue.

5. She feels transformed, strength recovered, and says she is able to work.

6. The constipation has disappeared. Patient has a daily movement of the bowels.

7. The patient, comparing the benefit from the galvano-caustics with that from the punctures, affirms that the benefit from the latter is very much greater, especially from the punctures made under chloroform, at a higher dose, which proves that the effect increases with the intensity, other things being equal.

8. Patient has never been as well as at present since her marriage.

9. The sexual relation is not very painful.

10. From an anatomical point of view the exudate has been reduced three-fifths. The patient remains under observation, and it is probable that no new interference will be necessary, since she believes herself nearly well from every point of view, and capable of leading the active life of a tradeswoman.

June 7.—Patient weighs 119 pounds. (In December she weighed 118 pounds.) Dr. Apostoli made a futile attempt to pass the sound. This was painful and could not be completed. In the evening the patient had a bloody discharge, which was certainly provoked by the attempt to pass the sound. This discharge continued almost without interruption from the 8th to the 16th of June; it was neither accompanied nor preceded by abdominal pain.

June 18.—The discharge has been arrested since the 16th, since which time there has been an offensive return of the pain in the right iliac fossa.

June 21.—The old gastric disturbance reappeared the day before yesterday; the patient vomited, and was obliged to come to the clinic for the galvanization of the pneumo-gastrics. Walking is again difficult, and the countenance is once more depressed in consequence of the relapse, which can only be attributed to the sound. With the single object of calming the patient, a first vaginal faradization was immediately given, using the large bi-polar vaginal sound, the extremity of which was applied against the right lateral cul-de-sac, the most painful part. Application of a *current of tension, with the fine wire, with slight intensity, for fifteen minutes.*

The acute pain disappeared immediately after the treatment, the expression became better, and walking easier. Patient continued to be relieved during the evening and somewhat the next day: on the third day there was an offensive return of the old symptoms.

June 23.—Third vaginal faradization, identical with the first, lasting ten minutes, with the same amount of relief.

June 24.—Third faradization, ten minutes.

June 25.—Fourth faradization, ten minutes. Since the 22d the amelioration of the pain has been progressive, and parallel with this the gastric trouble, which always occurs with the pain, has been relieved. The patient has not vomited, indeed, since the 22d; the digestive functions are re-established, walking is easy, and sleep good.

June 30.—In order to bring about the complete resolution of the remainder of the old exudate, a sixth negative, vaginal galvano-puncture was made to-day, *to the right posteriorly*, in the most prominent portion of the fibroid, 180°, five minutes. Depth of puncture, one centimetre. Patient chloroformed. Remained at the clinic 24 hours without any incident worthy of note, and returned to her home the next day.

July 2.—No loss of blood. Patient suffered very little after the puncture. She had a little nausea, but did not vomit. Antiseptic vaginal injections, and tampons continued.

July 12. Menstruation continued from the 4th to the 7th, moderate in quantity, without clots, and without pain either before or during the flow. Since the cessation of the menses the patient has suffered for three days, and has had a return of the gastric trouble. The abdominal pain is better to-day. *Intra-uterine faradization*, with the fine wire, for *five minutes*, badly borne. Galvanization of the pneumo-gastrics continued.

From July 19 to August 20 the patient continued her visits to the clinic regularly three times

a week. *Bi-polar vaginal faradizations with the fine wire* have sufficed for treatment. Thus she has had *seven successive sittings of five to eight minutes each*, the result of all of which has been to increase progressively her *bien-être*, and to relieve all abdominal pain. One month after the last puncture the orifice made by it had not closed, but the patient was able to continue her occupation, in spite of the presence of a temporary vaginal fistula, thanks to the antiseptic precautions which have been carefully observed. Conjointly with the vaginal treatment the galvanization of the pneumo-gastrics has been carried on, according to the indications and, as usual, each séance has been followed by an immediate alleviation of all the gastric disturbances.

October 16, 1887.—Patient has been so well that she suspended her visits to the clinic after the 28th of August. She walks easily, does not suffer, and has no pain during sexual intercourse. Her sleep is good, she eats well, and digests easily. The abdomen is no longer painful, even when she is tired. She is scarcely sensible of a slight dragging the first day of her menstrual periods. Total absence of leucorrhœa.

January 12, 1888.—Excellent health since the last visit. Patient has worked constantly and been able to do really hark work since October, and this without interruption during her periods, which last on an average six days. On palpation, one finds absolute insensibility of the abdomen. On internal examination, the uterus is found to be movable, the peri-uterine exudate is almost entirely absorbed, and there is marked diminution of all sensibility, even with deep pressure.

January 26, 1888.—Same good condition. The journeys which she is constantly obliged to take, even during menstruation, do not fatigue her.

April 16, 1889.—Of her own accord the patient has discontinued all visits to the clinic since January, 1888. She comes to-day by special request. Her health has remained perfect in every particular, and she believes herself radically cured, because all the functions are normal. She has not been indisposed for a single day, and has continued her fatiguing work without interruption.

Actual Condition, April 16, 1889.—Complexion fresh and of good color, giving every evidence of health. Walking very easy. Erect position not at all painful. Menstruation is always regular. It occurs on a fixed day, without delay. The quantity diminishes progressively. Formerly the flow continued six days, at present it lasts but three or four days. There are no clots. *There is complete absence of pre-menstrual dysmenorrhœa.* She feels only a little tired, and slight abdominal pain before the appearance of the flow. She is always able, even during her menstruation, to work easily and without fatigue. Vesical functions normal; no constipation; complete absence of leucorrhœa; sexual relations are rather painful. *Palpation;* the two iliac fossæ are not at all painful.

Internal Examination.—Neck in normal position. Uterus movable, without appreciable sensibility. Absence of pain on touching the culde-sac, but a deep exploration causes rather acute pain in Douglas' pouch, very little laterally. The uterus is easily displaced laterally, but on raising it it is found to be slightly adherent to the sacrum.

With a deep touch the right ovary can be felt, also the right Fallopian tube, which no longer seems to be inflamed. The rectal examination confirms what has been determined by vaginal examination. All efforts to pass the sound—even a very small sound—are futile. The sound is arrested by an almost complete atresia of the external orifice.

Nota Bene.—This absence of dysmenorrhœa, which is coincident with a considerable degree of uterine atresia, is a new fact, which, with the addition of those which I already possess (in all a very large number) stands in favor of the thesis which I have sustained for a long time, the frequent independence of dysmenorrhœa, and uterine atresia, and confirms this proposition: *Dysmenorrhœa is almost always of ovarian origin, very rarely of uterine origin.* The patient affirms again to-day that, judging without appeal, the respective results of the different treatments that she has undergone, she has derived the greatest benefit from the galvano-punctures, although more painful and often scarcely to be endured without chloroform.

In order to get all possible information on the origin of the disease, I saw the husband to-day (April 23, 1889), for the first time, who stated that he had, in 1878, while in the army, a manifest gonorrhœa, characterized by pain on urination, and a discharge *sui generis.* He claimed to have been rapidly cured of this disease by the usual treatment. Five years after this he married, and it is possible that in spite of his statement he had still, at this date, an unknown gonorrhœa, which must have been the point of departure, as is usual, of the peri-uterine accidents of his wife.

SECOND OBSERVATION; SUMMARY.

Madame Marie Elien, domestic, aged 22 years, presents herself at the clinic of Dr. Apostoli June 9, 1885; unipara.

Antecedents.—No hereditary antecedents, habitual good health, no diseases of infancy, menstruated at 17 years of age, scantily during two days on an average, and without pain. Married at 21 years, pregnant immediately after, prematurely confined in seven months, after a fall on March 13, 1885. Immediate consequences apparently good, and probable commencement of the

present malady six weeks later at the time of the menstrual return. Profuse metrorrhagia, which has existed a month, and acute pains in left side of abdomen, work impossible, sexual relations very painful. Has kept the bed for a month with fever. Gastric troubles.

Diagnosis.—Endometritis. Double prolapsus of the uterine annexes, and left ovaro-salpingitis. Uterus bound down.

Treatment.—First galvano-cauterization, intra-uterine, negative, 100 milliampères, five minutes.

June 13.—Improvement as to the pain. Metrorrhagia continues.

June 16.—First galvano-puncture, vaginal, negative, made in the posterior cul-de-sac, with a fine steel trocar, to the depth of one centimetre, without anæsthesia, 80 milliampères, five minutes. Rather lively reaction the same evening of the operation, which became calmed in the night, and after which she was better. Continuation of the metrorrhagia.

June 18.—Disappearance of the pains—has not kept the bed since the beginning of the treatment.

June 23.—Expulsion of a slough last evening and considerable diminution of the retro-uterine exudate, as well as of the vaginal sensibility.

June 30.—The same good condition.

July 4.—Marked improvement.

July 9.—All flow has ceased.

July 11.—Second galvano-puncture, vaginal, negative, in the posterior cul-de-sac, to the depth of one centimetre, 100 milliampères, five minutes, without anæsthesia, and without a sojourn at the clinic—only rested two hours, the same as at the first time.

August 4.—No inflammatory reaction as a result of her last puncture. She has been able to endure easily a journey into the country, from which she has just returned after an absence of three weeks.

August 8.—Same good condition. Third galvano-puncture, vaginal; negative, 50 milliampères, five minutes.

Sept. 12.—Improvement persists. Walking is more easy.

Sept. 17.—Fourth galvano-puncture, vaginal, negative, 50 milliampères, five minutes.

Sept. 22.—Fifth galvano-puncture, vaginal, negative, 50°, five minutes.

Sept. 29.—Offensive return of the pains under the influence of a great fatigue and the renewal of the sexual relations in spite of our injunctions to the contrary. Fresh metrorrhagia.

Oct. 6.—All is quieted, the flow is arrested, and she does not suffer.

Oct. 13.—The improvement conitnues, the posterior puffiness has almost disappeared, and she can be considered as cured.

Oct. 22.—Another galvano-puncture made solely for the purpose of perfecting the cure. Sixth and last galvano-puncture, vaginal, negative, made as the preceding ones, to a depth of one centimetre, without anæsthesia, and with the aid of a small steel trocar, after having taken all the precautions possible for vaginal antisepsis before and after each treatment. No sojourn at the clinic, repose only for two hours. All of these galvano-punctures, although painful, were in general well tolerated, and were not followed by any inflammatory reaction.

Oct. 30.—She is very well, she is cured symptomatically and anatomically, all the exudate has disappeared; but the uterine annexes remain prolapsed, a deep and quite forcible vaginal pressure is necessary in order to provoke sensibility. She ceases all treatment spontaneously.

Jan., 1886.—Beginning of a *second pregnancy*, during which she can continue her work without interruption.

August 30.—Premature confinement at about seven months without appreciable cause, expulsion of a dead fœtus, immediate results good, almost immediate resumption of her work.

Oct. 6.—Same good condition as a year ago. The uterus can be displaced laterally, but preserves still some posterior adhesions. Defecation, previously painful, is easy and causes no longer sensitiveness. To resume, a year after cessation of treatment the patient remains cured. Symptomatically and anatomically she remains very much improved, her health is perfect in every direction and the sexual relations, impossible before the treatment, provoke no longer any sensitiveness.

January, 1887.—Commencement of a *third confinement*, which developed normally.

Oct. 21.—Normal confinement at term, and results of the lying-in good. Resumption of her domestic work almost at once. Nurses her child.

May 12, 1888.—She has not kept the bed a single day, and has not lost the benefit of her treatment, same anatomical condition, same prolapsus of the uterine annexes, especially the left, without any inflammation.

August.—Commencement of a *fourth normal confinement*, during which she worked constantly.

April 28, 1889.—Confinement at term. Sequelæ of the lying-in excellent, no pains in the abdomen, no leucorrhœa, was able to recommence her work on the tenth day.

June 8.—Is very well, all her functions are normal, she nurses her child.

Local Examination.—On pressure, a slight ovarian pain in the left iliac region is observed, the uterus is normal, very movable laterally, but cannot be lifted without a little difficulty, on account of the posterior adhesive bands, same prolapsus of the annexes, more pronounced on the left, with one tube in the recto-vaginal wall, no signs of salpingo-ovaritis.

To resume, the treatment, composed of *one galvano-cauterization and of six galvano-punctures*, had an immediately favorable result, symptomatically and anatomically, which survived four years after, and which permitted the evolution of *three consecutive confinements, of which two were at term.*

OBSERVATIONS ON OVARIAN SALPINGITIS; SUMMARY.

Woman, aged 34, multipara, scrofulous. Until the age of 29 menstruation regular, abundant, and without dysmenorrhœa. Married at 29. Sudden appearance immediately after of an intense, premenstrual dysmenorrhœa. Sanguinous flow and frequency of periods increased. Same unfortunate condition for three years, making work often difficult. For two years progressive aggravation of the local condition: continual abdominal pain, walking almost impossible, daily vomiting, suspension of sexual relations because so painful, beginning of an almost continuous metrorrhagia, unsuccess of all classic treatment. After remaining in bed for eight consecutive months almost all the time, the patient presented herself at clinic August 17, 1886.

Complete peri-uterine inflammatory exudate, with subadjacent fibroids, und right ovarian salpingitis.

From August 21 to November 23, 1886, thirteen negative, chemical, intra-uterine galvano-caustics of 60 to 150 milliampères, five minutes each, with two galvano-positives at the beginning, to arrest the existing metrorrhagia, and, in addition, bi-polar galvanization of the pneumogastrics three times a week.

Marked anatomical retrogression and considerable symptomatic amelioration. In order to perfect the cure, from December 28, 1886, to June 30, 1887, six negative, vaginal galvano-punctures at a depth of one centimetre, posterior and to the right; two, without chloroform, at an average of 60 milliampères, five minutes each, and four, with anæsthesia, of 150 to 200 milliampères of five minutes each. Amelioration more marked and rapid under the influence of the galvano-punctures. Some vaginal and intra-uterine faradization of *tension*, with the fine wire, were practiced to alleviate the pain, and, simultaneously, galvanization of the pneumogastrics, which were always victorious over the gastric troubles.

Suspension of all treatment in August, 1887. At this date the patient declared herself symptomatically cured. Walking easy, riding well borne, difficult work tolerated even during the periods, entire disappearance of all spontaneous pain, increase in strength, better health than for several years, menstruation regular, disappearance of all dysmenorrhœa. Anatomically the retro-uterine inflammatory exudate has almost disappeared.

From August, 1887, to March, 1889, all the functions have been normal and the cure has remained well defined.

THE ETIOLOGY OF LEPROSY.—A CRITICISM OF SOME CURRENT VIEWS.

Read in the Section on Dermatology and Syphilography at the Fortieth Annual Meeting of the American Medical Association held at Newport, R. I., June, 1889.

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Putting to one side, for the present, the bacillus, which all pathologists agree is to be found in every leprous neoplasm, the supposed etiological factors of leprosy which have been most considered of late years, are three, viz., (1.) Heredity. (2.) A diet of fish. (3.) Contagion.

The theory of heredity has had immense support, both lay and professional, and it is curious to observe how loth some medical authors are to set themselves free from its trammels, or to question its influence in propagating the disease, even though many of the facts which they themselves adduce seem obviously to lead to quite another conclusion. As Mr. Jonathan Hutchinson points out, [1] the fact of leprosy occasionally appearing in healthy immigrants, and just as severely as if such persons belonged to leper families, is enough to prove that hereditariness goes for little or nothing in its causation. It is indeed idle to deny the liability of leprosy to attack individuals who have not the slightest hereditary taint.

In a recent paper,[2] my friend, Dr. Blanc, who has in late years seen probably more cases of leprosy in the United States than any one observer, shows that in forty-two cases treated by him, twelve were natives of foreign countries (seven German, one Austrian, one English, one Irish, one French, one Italian), and of the remainder, eighteen were the children of foreign born parents (chiefly German and Irish), "from which we conclude," he says, "that if the disease is hereditary, it must be derived from a variety of foreign sources; and if acquired then it seems to attack the children of immigrants as often as those of the older native families." What evidence can be stronger against heredity?

An important paper on the Heredity of Leprosy has lately been published by Dr. G. A. Hansen,[3] who made a journey to North America last year to see what had become of the Norwegians who had gone there as lepers or had de-

[1] Clinical Lecture on "Leprosy, its Cause," etc.—Med. Press and Circular, Nov. 4, 1885.
[2] "Leprosy in New Orleans." N. O. Med. and Surg. Journal, 1888.
[3] Virchow's Archiv., Vol. CXIV. 1888.

veloped leprosy after their arrival in the new world, and to study this question of heredity in particular. With the help of Dr. Hogh, of Minneapolis, and Dr. Grunwold, of Minnesota, he was able to find out that about 160 Norwegian lepers had been established in the states of Wisconsin, Minnesota, and Dakota. Many of them are married, and several have left a good many descendants. There are, in addition, many other Norwegian immigrants who are either descended from lepers, or have leprous relations in Norway. There is, therefore, in those districts, considerable material for the inheritance of leprosy. Of the 160 leper immigrants only thirteen are left, which he himself saw, and besides these there are perhaps three or four others. All the rest are dead. Of all their descendants whom he has seen as far as the great grandchildren, not one has become a leper. This is, in short, the result of his investigations; and he says there can be only one explanation, viz., that leprosy is not inherited.

The Fish Theory.—In reference to this old theory, Mr. Hillis wrote in 1881 that it "may now be laid aside as obsolete;" and it is, I believe, almost universally discredited by the medical men in Norway, as well as in every other part of the world where leprosy is rife. Nevertheless, one who is justly regarded as one of our highest British authorities is still, it seems, an ardent believer in the view that the disease is contracted by the eating of fish, more especially fish which has been somewhat decomposed, or has been salted.[4]

Those who oppose this theory may well point out that while numbers of people in Scandinavia, in Africa, and in other countries, habitually regale themselves with imperfectly cooked or decomposed fish, and do *not* get leprosy, numbers of those who *do* acquire the disease are not aware of ever having eaten anything of the kind. (This negative argument is apparently at least as good as that largely relied on by the anti-contagionists, who infer that because many persons who come in contact, or even live with lepers, do not become lepers, therefore the disease cannot be contagious under any circumstances.)

If, indeed, it must be through *one* particular article of diet, in all parts of the world, that the germ of leprosy is introduced into the system, why may we not select something which everyone must swallow at some time or other, such as, for instance, bad water? Filters and other precautionary measures are, at any rate, not particularly fashionable in leper countries.

We really have no direct arguments against a possible dietetic origin for leprosy, *i. e.*, at least by means of contaminated food; and the view of D. Liveing promulgated in his Gulstonian Lectures so long ago as 1873,[5] viz., that the disease may be "propagated by the inhibition of the excretions of those affected, much in the same way as typhoid fever or cholera," may yet come to the front and secure further support.

The Contagion Theory.—Although clear and distinct instances of the direct communicability of leprosy from person to person are few and far between, and, from the nature of the disease, its latency and uncertain prodromata—difficult to prove, it appears to me that we cannot now deny its "contagiousness" in the sense that untainted individuals may occasionally become affected with the disease after being in close relation with lepers. As far as I can see there is no getting over Dr. Hawtrey Benson's case,[6] and as that careful physician remarks, "to ignore the evidence of contagion in this case, where the circumstances are so simple and so well authenticated, is indeed to strain scientific caution to its utmost limit, if not beyond it. . . . . The proof of contagion afforded by this case possesses a force little short of that of a mathematical demonstration." I agree with him that "one such fragment of positive evidence carries more weight than a vast accumulation of negative evidence." In 1885, in his lecture on leprosy, Mr. Jonathan Hutchinson is reported to have said, "of course, if you are prejudiced in favor of its contagiousness, you can produce instances apparently in favor of it, especially if you reject a thousand negative facts in favor of one fact which seems to support it. I submit that no one who will read a record of the facts can ever believe that contagion can take place." There are other authorities, too, who, having made up their minds on the subject many years ago, are "of the same opinion still;" several, however, have seen reason to modify their views. Until a few years ago most of the Norwegian physicians disbelieved in the contagion of leprosy. Dr. Hansen, however, the discoverer of the bacillus, boldly asserted its infective character; and I found last year that Dr. Sand, of Trondhjem, and Dr. Kaurin, of Molde, have both come round to his way of thinking. The veteran Dr. Danielson, however, is still of the old opinion—for, as he told me, "in all his long experience with the disease he had never met with one single instance of contagion." Dr. Nickoll also has no belief in the contagion of leprosy, nor indeed in its heredity. Dr. Kaurin now considers that leprosy is not transmitted by heredity, although like Virchow and many others, he admits that there may be hereditary predisposition to contract the disease. He informed me that he had seen several cases, besides the one he has published, which point to direct contagion. Dr. Sand is of a similar opinion; and I learnt from him that he has known of two cases of servants—one at the Molde asylum, and one

[4] Mr. Jonathan Hutchinson, l. c., p. 417.
[5] "Elephantiasis Graecorum, or the True Leprosy," 1873, p. 93.
[6] Dublin Journal Medical Science, 1877, p. 562, and letter in British Medical Journal, April 13, 1889.

at Bergen—having contracted the disease while in attendance on lepers. He knows, too, of many other instances which can be, at any rate, most satisfactorily explained by the theory of contagion.

Dr. Phillippo, of Jamaica, gave me, last year, his opinion as follows: "It is communicable by contagion. This has always been the opinion amongt most of the laity, and, with some reservation, amongst many of the medical profession. Of late years I have known some most undoubted cases of contagion, and yet there have been many instances of relatives who have for years lived in daily intercourse of the freest kind, as parents and brothers and sisters, who have not suffered, and a small number of those who undoubtedly have. . . . . I know of cases where there was no hereditary disease in which one member of a family has taken it from another. In one case, the husband, a European, took it from the wife. In him it ran a rapid course, and he died before her, though she had it for years before him. I know of cases in which this disease has been taken from outsiders, and have heard of others in which it has been taken from the wet nurse."

It is interesting to observe that Dr. Phillippo is one of those authorities mentioned by Dr. Gavin Milroy[7] as being opposed to the view that leprosy is contagious.

Dr. A. R. Saunders (M.D., Lond., F.R.C.S. Engl.), one of the leading practitioners (for 14 years) of Kingston, Jamaica, has recently informed me that he has no doubt whatever as to the contagiousness of leprosy, and that he has under his care at the present time in Jamaica several cases which can only be explained by the theory of contagion. He ridicules the idea of a fish diet having anything to do with the disease.

Dr. Blanc, of New Orleans, states in the paper quoted, his belief, after a study of these forty-two and other cases, "that leprosy may be communicated from a leprous to a non-leprous person by means of a specific virus, which acts like a specific poison of syphilis, depending upon thin or denuded surfaces for its absorption, and which remains potent, very probably, for an indefinite period of time."

The doctors in the Sandwich Islands are all (and have been, with one exception, Dr Fitch, report, Honolulu, 1886), believers in the contagion of leprosy; as are many of those at the Cape, in India, in the West Indies, and elsewhere. Dr. G. H. Fox, of New York,[8] indeed says, "Now it is generally admitted by those who have most carefully studied the facts of the case that leprosy is a contagious disease." He further remarks that "granting leprosy is contagious, we are forced to admit that it is so only to a very limited extent." Most people will concur in this.

Some of the ablest observers are still keeping their minds open on the question. Dr. Beaven Rake writes that he has met with no case of contagion in Trinidad, but that he can bring forward many negative instances. His inoculation experiments on animals, too, have been so far unsuccessful—as were those which were formerly practiced on the human subject in Norway, in Mytelene, by Bargilli, and more recently in Sicily by Profeta. Even Arning's experiment on the convict at Honolulu, is, in Dr. Rake's opinion, not conclusive. This man, Keann, was inoculated September 30, 1884, by Dr. Arning, "after having previously made a most searching inquiry as to any leprous taint in his family, and a close examination of his own body," which examination, says Dr. Arning, "satisfied me that, as far as I am able to judge, no trace of the disease could be found on him at that time."[9] Dr. Beaven Rake's valuable "Report on the Trinidad Leper Asylum for 1888," has just been kindly sent to me by the author. In it, in reference to this inoculation, he says, "When, however, we come to examine this question dispassionately, what do we find? A man living on an island infested with leprosy was inoculated three years' ago with the disease and has now developed it. But in that time he may have acquired leprosy in a dozen different ways, in air, food, water, etc., or it may have been in his family. True, the man was ascertained as far as possible to come of a clean family, and he has been isolated in goal since the inoculation. Still, anyone who has attempted to take the statement of lepers will appreciate the value of family history, and in a country where leprosy is rampant are we sure that it can be shut out by four walls? I repeat what I said in my last report, that an experiment of this, kind, to be scientifically perfect, must be performed in a country free from leprosy, and in an individual who has never left that country, and whose immediate ancestors have always stayed at home."

Mr. C. Macnamara, then of Calcutta, discussing in 1866 the Indian Reports on Leprosy in an able article in the *Indian Medical Gazette*, stated in addition to other arguments in favor of the view of its contagiousness: "(1. A large proportion of the civil surgeons in this presidency believe, from personal observation, that the disease is contagious. (2.) The instances quoted from this report can only be explained by supposing the disease to be contagious."

Any opinion, however, which was favorable to contagion prior to the year 1867 went for nothing, for in their celebrated and authoritative Report of that year, the Royal College of Physicians of London, made the sweeping statements, so often quoted, that: "The all but unanimous convic-

[7] In his report on Leprosy in the West Indies, 1873, p. 30.
[8] In his "Remarks on the Treatment of Leprosy," New York, 1885.
[9] Appendix to Report on Leprosy, Honolulu, 1886, p. 43.

tion of the most experienced observers in different parts of the world is quite opposed to the belief that leprosy is contagious or communicable by proximity or contact with the diseased. The evidence derived from the experience of the attendants in leper asylums is especially conclusive on this point. The few instances that have been reported in a contrary sense either rest on imperfect observation, or they are recorded with so little attention to the necessary details as not to affect the above conclusion." More than 250 replies to the interrogatories of the College Committee had been received from medical men and others located in the various leper centers, and a large majority of these were undoubtedly in the negative with regard to the communicability of leprosy from person to person. Some 32 or so, on the other hand, gave a more or less affirmative answer in reference to the question; and several qualified men actually cited cases in support of their views; *e.g.*, amongst others. Drs. Aquart, of Grenada; Manget, of British Guiana; Regnaud, of Mauritius; Jackson, Harris, and Messrs. Macnamara, and Rose, of India. On looking over the report, it is difficult to see why the opinions of these gentlemen, many of whom had been for years in charge of lepers, should have been, apparently, considered so unreliable and worthless, in comparison with the others. The College, it seems, did not modify its views for years; but in 1887 we learn that "the committee are quite aware that there is much difference of opinion respecting the communicability of leprosy, and that many colonial practitioners and inhabitants do not concur in the views expressed by the College in their Report in 1867."[10]

There is indeed, as the Committee now admits (April 7, 1889), "increasing evidence respecting the communicability of leprosy;" and it seems to me that we cannot ignore the cases reported, and the opinions formed upon them, by such qualified observers as Vandyke Carter in India, Petersen and Münch in Russia, Besnier, Vidal, Leloir, and Cornel in France, and by many others of large experience and of high repute in all parts of the world.

In point of fact, however, any circumstances whatever—however strong they may be—which apparently lend support to the contagion theory, so long as they occur in a country in which leprosy is prevalent, are liable to be laid aside with some such "begging-the question" remark as, that "after all it only amounts to this, that a person has become a leper in a place where the disease is endemic!"

In conclusion, I venture to express the opinion—after a somewhat extended study of the subject—that, with the facts at present at our disposal, it appears to be a pure assumption, unsupported by valid evidence, to say that leprosy can *only* gain a footing in the human body *per unam viam*.

Dr. Gavin Milroy, the secretary of the committee which scouted the idea of contagion, said, after his visit to the West Indies, that "leprosy appeared to him to be neither more nor less contagious than scrofula." We have no reason to assume that it may not be introducible in as many ways, although, perhaps, with much greater difficulty. The problem will, possibly, be fully solved when we know the whole life history of the microbe which is characteristic of the disease.

[10] Vide "Leprosy Committee Report," R. C. P., July 15, 1887.

THE AMERICAN MEDICAL ASSOCIATION AND ITS RELATIONS TO PUBLIC HEALTH.

Read in the Section on State Medicine, at the Fortieth Annual Meeting of the American Medical Association, June 27, 1889.

BY N. S. DAVIS, M.D., L.L.D.,
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Although the primary and potent influence that prompted the movement that resulted in the assembling of the Convention of delegates in the city of New York, May, 1846, to effect a permanent National organization of the profession of the United States of America, was the desire to elevate the standard of professional education and thereby increase the usefulness and honor of the profession; yet even that preliminary Convention did not pass without initiating important measures having a direct bearing on the interests of public health.

On the second day of that Convention, May 6, 1846, Dr. John H. Griscom, of New York City, offered the two following resolutions, which were adopted without opposition:

"*Resolved*, That a Committee of five be appointed to consider the *expediency*, and if deemed expedient, the *mode* of recommending and urging upon the several State Governments the adoption of measures for a registration of the births, marriages and deaths of their several populations.

"*Resolved*, That Mr. Lemuel Shattuck, of Boston; Drs. Jarvis, Dorchester, Mass.; Emerson, of Philadelphia; T. R. Beck, of Albany, N. Y.; and C. A. Lee, of New York, be a Committee to prepare a nomenclature of diseases, adapted to the United States, having reference to a general registration of deaths, to report to a future Convention."

By vote, the mover of the resolution was added to the Committee, as Chairman.

To constitute the Committee under the first resolution, the President of the Convention appointed Drs. J. H. Griscom, Alonzo Clark, Charles A. Lee, and James Stewart, of New York; and G. Emerson, of Philadelphia.

At the adjourned Convention, assembled in Philadelphia, May 5, 1847, both these Committees made able reports, that received the cordial sanction of that body. The report by the Committee on Registration of Births, Marriages and Deaths, contained a brief and pointed appeal addressed

to the several State Governments, in favor of the enactment of such laws as would secure a general and uniform registration, and indicating the benefits to be derived therefrom. It also recommended the appointment of a Standing Committee to take general charge of the subject and annually report progress to the Association. It further recommended that the several State Medical Societies aid in urging the matter upon the Legislatures of their respective States. These recommendations were adopted, and after the Convention had resolved itself into the American Medical Association they were persistently prosecuted until there are but few States in the Union without laws of more or less efficiency on the important subject of vital statistics.

The important bearing of this movement made at the threshold of this National organization upon the interests of public health is more fully appreciated when we remember that it is only by a reliable registration of deaths and their causes in the population of any city or country that we are enabled to locate such deaths and compare their ratio to the population in one locality with another. This gained, the way is open for a careful comparison of the conditions of the soil, water, air, food, and personal habits, in the localities in which diseases and deaths prevail most, with those in which their ratio is lowest. And thus indication for the sanitary improvements come into the mind with all the clearness and force of well ascertained facts.

The Standing Committee to take general charge of the subject of registration, or vital statistics, as recommended in the report to which I have alluded, appointed by the Convention and approved by the Association after the completion of its organization, in May, 1847, consisted of the following members, viz.: Drs. J. H. Griscom, C. A. Lee, A. Clark, and John D. Russ, all of New York; and G. Emerson, of Penna.; R. D. Arnold, of Georgia; and Mr. Lemuel Shattuck, of Mass.

Probably the first attempt to make a general investigation concerning the hygienic and sanitary condition of the whole country was made by the Medical Department of the National Institute, at Washington, D. C., in 1845, when a Committee was appointed, consisting of Drs. James Wynne, Thomas Sewall, J. M. Thomas, Marcus Buck, and Dr. Baile, of the U. S. Navy. This Committee from time to time issued circulars addressed to members of the profession and others in different parts of the country soliciting information regarding the condition of the public health and the causes supposed to be capable of affecting it, in their respective localities.

At the second meeting of the American Medical Association, held in Baltimore, 1848, two members of the Committe, Dr. James Wynne, Chairman, and Dr. J. M. Thomas, attended as delegates from the Medical Department of the National Institute, and presented a memorial, not only calling attention to the subject, but inviting the Association to appoint a committee to take charge of the further prosecution of the work. In their memorial it was stated that many replies to their circulars had been received and much information of more or less value obtained, but not sufficient to justify the publication of a formal report on so important a subject.

The memorial was received and referred to a Special Committee for consideration. At a subsequent stage of the meeting the Committee reported, recommending the appointment by the President of the Association of a "Committee on Hygiene," to consist of twelve members, and with power to fill vacancies in their own numbers. [See Transactions of the Association, 1848, pp. 38, 42, and 43.] The recommendation was adopted, and the President announced as members of the Committee on Hygiene, Dr. James Wynne, of Baltimore; Dr. Isaac Parrish, of Philadelphia; Dr. Charles P. Gage, of Concord, N. H.; Dr. Peter C. Gaillard, of Charleston, S. C.; Dr. John M. Thomas, of Washington, D. C.; L. P. Yandell, of Louisville, Ky.; Dr. John P. Harrison, of Cincinnati; Dr. Edward H. Barton, of New Orleans; Dr. Albert Smith, of Peterboro, N. H.; Dr. John H. Griscom, of New York; Dr. J. Curtis, of Lowell, Mass.; and Dr. Turner, of New Orleans.

Another subject of importance, and at least indirectly affecting the public health, received prompt attention at the same annual meeting, namely, the adulteration and deterioration of drugs. A long and very important paper on the subject was presented by Dr. T. O. Edwards, of Ohio, a member of the National House of Representatives,[1] which was responded to by a memorial to Congress urging the passage of proper laws for preventing the importation and sale of adulterated and worthless drugs.

It is thus seen that during the first year after the completion of its organization this Association had entered actively upon the work of promoting the public health in three directions, viz.: the securing of reliable registration of births, marriages and deaths; 2. the direct investigation of the causes of disease and the means for their removal; and 3. the securing of drugs of standard quality and purity. This third line of work was prosecuted so efficiently that Congress soon enacted the necessary laws for the proper inspection of all imported drugs, and they have continued in operation until the present time.

At the second annual meeting of the Association, which was held in Boston, May, 1849, the Committee on Hygiene, composed of twelve members, as already stated, made a brief general report on the subject of drainage, street cleaning, water supply, building and ventilation, nuisances,

[1] See Trancactions 1848, pp 38 and 311.

and disinfectants, and special reports on the sanitary condition of the cities of Portland, Concord, Boston, Lowell, New York, Philadelphia, Baltimore, Charleston, New Orleans, and Louisville; on the use of disinfectants in the Navy, and on the influence upon health of the introduction of tea and coffee in large proportion into the dietary of children and the laboring classes, making in all 224 pages of the volume of Transactions for that year. These special reports and papers present a great variety of facts and observations of the highest importance, and to students of sanitary science they afford the best indication of the status of sanitary interests in this country half a century since that can be found on record. This is especially true regarding the special reports on Boston and Lowell, by Dr. Josiah Curtis; on Philadelphia, by Dr. Isaac Parrish; on Baltimore, by James Wynne; on Charleston, by Dr. P. C. Gaillard, and on New Orleans, by Edward H. Barton. The report of Dr. Curtis gives a very interesting history of the sanitary measures and public hygiene of Massachusetts from its early Colonial settlement to the time he wrote, 1848, including a valuable summary of its vital statistics.

In addition to the full reports from the Committee on Public Hygiene, the Standing Committees on Medical Sciences, and on Practical Medicine, in their reports at the same meeting of the Association, gave many facts of much interest relating to public health, particularly in connection with the appearance of Cholera in New York and in New Orleans in December, 1848, and other epidemic diseases in various parts of the country.

The next annual meeting of the Association was held in Cincinnati, May, 1850, when the Chairman of the Committee on Hygiene, the late Dr. Josiah M. Smith, of New York, presented one of the most interesting and valuable reports on the "Sources of Typhus Fever and the Means Suited to their Extermination," that I have ever read. Regarding human or animal excretions as the chief source of typhus and typhoid fevers, he gives a very complete exposition of the composition and quantity of the excretions from the human body, including the exhalations from the skin and the lungs, and of the extent to which the walls, furniture and air of rooms, as well as the soil and water, may become so contaminated as to develop and propagate the essential causes of continued fevers. Besides this report of the Chairman, two special reports were made by other members of the Committee. One was made by Dr. Edward Jarvis, of Dorchester, Mass., on the "Sanitary Condition of Massachusetts and New England," and is an excellent supplement to the special report of the previous year, by Dr. Josiah Curtis. The other was by Dr. J. C. Simonds, on the "Hygienic Characteristics of New Orleans," and is a fitting complement to the report of Dr. Barton the previous year. At the same meeting of the Association in the report of the Standing Committee on Practical Medicine and Epidemics, made by Drs. J. K. Mitchell, R. LaRoche, and Francis West, we have a very able and detailed account of the great cholera epidemic of 1849, and embodying facts worthy of the careful study of investigators and practitioners of the present time.

The annual meeting of the Association for 1851 was held in Charleston, S. C., at which further reports were made by the Standing Committees on Public Hygiene, and on Practical Medicine and Epidemics. It was at that meeting that the Standing Committees were abolished and a large number of Committees appointed to report on special subjects. The several States of the Union were divided into eight groups, and a Committee of three was appointed for each group, to report on the prevalence of epidemics and their causes. In the reports of these Committees at the meeting of 1852, in Richmond, Va., may be found valuable information concerning not only the epidemics, but also of the topography and general sanitary condition of the districts where the epidemic diseases prevailed, in most of the Eastern, Middle and Southern States.

At this meeting, also, a vigorous movement was commenced for improving the sanitary condition of ships carrying emigrants across the seas, and for compelling them to have on board competent surgeons to render proper care of such passengers as need their services. An able committee was appointed and instructed to memorialize Congress on the subject, and to enlist the influence of the several State Medical Societies in the same direction.

At each subsequent annual meeting, until 1859, the Committees on the Topography, Epidemics, and Vital Statistics of the several States and large cities made reports of such extent and value that they occupy not less than one-third of the pages of the several volumes of Transactions for those years. Experience had been demonstrating from year to year the impossibility of hearing in detail such an amount of material in the General Sessions of the four days allotted to each annual meeting, and hence the larger number of these reports, as well as those made regarding other departments of medicine, were read by title only and referred for publication.

To remedy this defect, the eminent sanitarian who is at present presiding over this Section of State Medicine, in the annual meeting of 1859, moved to so amend the By-laws that the General Sessions of the Association during the annual meeting should be limited to the morning of each day, and the afternoon should be devoted to meetings in a specified number of Sections. The plan was earnestly supported by the writer of this report and adopted by the Association.

It provided for five Sections, namely: 1. Anatomy and Physiology. 2. Chemistry and Materia Medica. 3. Practical Medicine and Obstetrics. 4. Surgery. 5. Meteorology, Medical Topography, Epidemic Diseases, Medical Jurisprudence and Hygiene.

These *Sections* were first organized and entered upon their practical work at the next annual meeting, which was held in New Haven in 1860. They have been rearranged and added to from time to time until their number has been doubled. But through all the changes they have invited, received and caused to be published valuable contributions relating to the public health every year. So true is this, that the annual volume of the Transactions of this Association from 1847 to 1882 contain the materials for a more complete history of the more important epidemic diseases that have prevailed in different parts of this country during the last half-century, with a synopsis of what had been put on record previously, than can be found elsewhere. Accompanying the numerous papers relating to epidemic disease is to be found a large amount of imformation concerning the topography, soil, water and meteorology of almost every State in the Union. The same series of volumes contain papers and reports from many of the most eminent members of the profession on almost every question relating to personal and public hygiene and vital statistics, whether in the city or in the country, on board of ships, or in camps, prisons, or asylums; not even omitting the consideration of foods and drinks. And through it all there is evidence of a constant and ever increasing demand upon the various legislative bodies, State and National, for the enactment of such laws and municipal regulations as would remove all those unsanitary and destructive influences resulting from density of population and neglect of cleanliness, ventilation, drainage and water-supply. All these efforts in the National body were reflected back through their delegates to the State and more important local societies. The effect upon the legislative bodies has been slow, but constantly cumulative. At the date of the organization of this Association, Massachusetts was the only State having a law for the registration of births, marriages and deaths, which had been enacted in 1842, and had been imperfectly executed. Until that period even the statistics of mortality were chiefly obtainable only from the records of the various cemeteries belonging to the larger towns and cities. Twenty-five years later Dr. Joseph M. Toner, in a statistical report on Boards of Health of the United States, records the existence and regular organization of Boards of Health in more than *one hundred* cities and towns, and State Boards in seven States, namely, Massachusetts, Rhode Island, Virginia, Louisiana, California, Michigan and Minnesota. (See Proceedings of Am. Public Health Association, Vol 1, p. 499, 1873.) Laws for the registration of vital statistics had been enacted in a larger number of States, and much influence had been gained both in the profession and outside of it, in favor of the establishment of a National Health Bureau. Indeed it was this rapidly increasing number of health boards and sanitary measures under the diverse legislation of many States that led directly to conferences among the Health Officers engaged in practical work, for the purpose of securing greater harmony of action. These, commenced in 1872, led in the following year, 1873, to the permanent organization of the American Public Health Association, and its subsequent career of usefulness. Later in the same year the severe epidemic of cholera prevailed throughout the Southwestern States, followed by an equally destructive epidemic of yellow fever in 1878–79, both of which served to greatly increase the action of legislative bodies, whether National, State or municipal, on sanitary measures. A National Board of Health was organized under a law of Congress, and although it proved of temporary duration it was followed by such an enlargement of the powers and duties of the U. S. Marine-Hospital Service as makes it, in some degree at least, a National health department, without the name. And State and local Boards of Health have become organized in nearly all the States and commercial cities of the country, and are annually increasing in their efficiency and harmony of action. In the accomplishment of these results, this Association with its constituent organizations, the State and local Medical Societies, has been not only the primary and chief force in moving legislative bodies to action on measures for protecting and improving the public health; but it has been steadily accomplishing an equally important work in educating the profession itself to a better appreciation of the nature and importance of preventive medicine, or sanitary science. And so far from having completed its work in either of these directions, it has only made a fair beginning, and improved its methods and implements for more efficient progress.

A knowledge of the causes of disease, their modes of development, the conditions under which they are capable of maintaining an active existence, and their *modus operandi* in the human system, must constitute the basis of preventive medicine and the only reliable guide to the adoption of such sanitary measures as will practically limit the prevalence of diseases and permanently lower the ratio of mortality wherever they may be instituted. That knowledge, which consists in the simple discovery or identification of the specific cause of a disease and its assignment to its proper scientific position among the myriads of organic germs, or in the long list of chemical products, is not sufficient for the successful prose-

cution of measures for the protection of the public health. Such identification is but a single item, though a very important one, in the series of facts needed for a successful warfare against the enemies of human health and life. Every living pathogenic germ must have its own pabulum or food and certain physical conditions of temperature, moisture, etc., for its development and propagation; and experience has shown that in a majority of instances measures for the removal of the pabulum, or for controlling some of the essential conditions, are more efficient in preventing its development than any measures for the direct destruction of either the living germ or the chemical ptomaine.

Therefore it becomes as necessary for the sanitarian to identify the materials in the soil, the water, the air, and in the living body, capable of feeding pathogenic germs or entering into the formation of ptomaines, as to discover the specific disease-producing agent itself. To cover the whole field of investigation successfully it is necessary to have the coöperation of all classes of workers in the profession. The carefully recorded observations of the general practitioner and of the specialist in their direct dealings with diseases and injuries, fixing the dates of their occurrence, progress and results, are as necessary to the proper understanding of the causes of disease and the conditions under which they are developed as is the most skillful work in the laboratories of the microscopist and the chemist.

It is only by the coöperation of observers occupying different standpoints of observation that the investigation of etiological subjects can be made complete. Consequently there is no medical organization in our country better adapted for the prosecution of such work than this Association, with its Sections covering all departments of medical science, and its JOURNAL through which the work of each becomes quickly distributed to the whole.

I trust, therefore, that this Section will not only continue a vigorous prosecution of investigations pertaining to the public health and preventive medicine, but will also so systematize the work as to render it more reliable and complete.

MEDICAL PROGRESS.

PHLEGMONOUS AND GANGRENOUS PROCESSES IN DIABETES.—Although the occurrence of purulent and gangrenous processes as the result of diabetes has been known for a long time, yet but little is known regarding the etiology, diagnosis and treatment of these processes. Formerly their etiology was sought in a specific action of sugar upon the tissues. Since König it is universally believed that especially diabetic phlegmon is the result of an infection the same as other phlegmons. As regards diabetic gangrene, Schüller is of the opinion that it is caused by acute arteriosclerosis and previous inflammations induced by pus-cocci. For the diagnosis of diabetic phlegmon the following points seem to be of importance: Development from an insignificant injury, its combination with gangrenous processes, and its obstinacy.

Regarding the diagnosis of diabetic gangrene, its occurrence in still robust, relatively not old people, consequent upon some slight injury or inflammation, and its painfulness, are significant.

Concerning the treatment of phlegmonous and gangrenous processes, MAX SCHÜLLER (*Berlin Klin. Wochenschrift*, Nos. 47, 48, 49, 1888), advises an early surgical intervention, and warns against delay for the purpose of a previous general diabetic treatment; he considers local, surgical, especially antiseptic treatment at the beginning as more important than the former. The greatest stress must be laid upon the treatment of the phlegmon itself, and its rapid and easy spreading must be fought against energetically with extensive incisions, draining and rinsing, and baths with antiseptic fluids, even more energetically than in common phlegmons in patients not affected with diabetes. In diabetic gangrene the conditions are more unfavorable. Local treatment must likewise be strictly antiseptic. If the physician succeeds in this way in obtaining a line of demarkation or in confining the gangrene, the part affected must be removed from the healthy portion with strictest antisepsis; if the gangrene can not be checked, at least the patient's life may be saved, as König has shown, by antiseptic amputation.

From a prophylactic standpoint the author advises the strictest attention to even the slightest injuries, in view of the great vulnerability of diabetic patients and their tendency to phlegmonous and gangrenous processes.—*Wiener Medicinische Wochenschrift*, No. 17, 1889.

REGARDING GLANDULAR NERVES.—In examining the tongue of a rabbit after injection with methyl-blue, RETZIUS (Verh. d. Biolog. Vereins, of Stockholm, I, No. 1) found in the vicinity of the papilla foliata the little glands in that region overspun with nerve fibres colored a beautiful blue. Alongside the glands he saw little nerve-trunks whose axis-cylinders were blue, and from these single fibres branched off that ran toward the alveoli of the gland to divide again into branches there. These nerve fibres were varicose and so thin that they had to be regarded mostly as end fibrilli. They surrounded the alveoli of the gland in all directions like nooses, lay evidently close upon the membrana propria, and formed a rich network closely surrounding the alveoli. In

some alveoli it seemed to Retzius that these fibres ended in cells, but he could not discover them entering these cells.

Through this observation we have progressed a step in the important question of the glandular nerves, inasmuch as we have here the last branches of the glandular nerves on the alveoli of the glandular cells, and these nerve-fibres proved very abundant and fine.—*Centralblatt für Physiologie*, No. 2, 1889.

On the Indications and Prognosis of the Operative Treatment of Abdominal Tumors.—In a paper published in *Orvosi Hetilap*, No. 48, 1888, W. Tauffer, of Budapest, says: "Every movable ovarian tumor, of at least the size of a fist, if diagnosed with certainty, should be removed, and the sooner the better. Ovarian tumors located between the ligaments, deep in the pelvis, are so dangerous to approach (because of their close proximity to large vessels, the urethra, etc.,) that their removal should be postponed until, rising from the pelvis, they begin to distend the abdominal walls and have thus become more accessible. Neither youthful or advanced age, nor malignant character of the tumor, kidney or heart affections, tuberculosis, extensive adhesions, acute peritonitis or a purulent character of the swelling should be considered an obstacle to the operation if the life of the patient appears to be endangered, and an improvement by the operation seems possible."

Despite these comprehensive views on the indications for operation, Tauffer lost of 172 ovariotomies (in ten of which supra-vaginal amputation of the uterus was necessary because of complicated conditions) only eighteen, *i. e.*, ten (4 per cent.), seven of these (4 per cent.) from sepsis.

The indication for ovariatomy Tauffer puts as follows: 1. Pathological changes in the position of the ovaries if causing acute symptoms and not curable otherwise. 2. Complete absence on deficient development of the uterus with normal ovaries, if ovulation causes intense pain. 3. Such diseases of the uterus as influenced by ovulation, heal after cessation of the latter (like intra-mural and some subserous myoma, fungus growths of the endometrium constantly returning, membranous dysmenorrhœa, many retroflexions not to be cured in any other way, etc.). 4. Chronic inflammation of the ovaries and their surroundings in cases where the entrance of blood accompanying evolution keeps up and constantly renews the inflammation. 5. Such acute diseases of the nerves as seem to be connected with ovulation and menstruation.

The thirty ovariotomies and salpingotomies made by Tauffer passed off without a fatality.

The radical treatment of tumors of the uterus he considers indicated: 1. In dangerous hæmorrhages which cannot be cured in any other way. 2. In symptoms of pressure which endanger the life of the patient, for instance, considerable pushing upward of the diaphragm, horizontal position of the heart, pressure on the large vessels, danger of incarceration, unbearable pains, etc. 3. If the tumor is growing rapidly. 4. If any complication dangerous in itself exists, or the vitality of the patient is sinking. Each of these conditions indicates the advisability of an early operation. In fifty-one cases of hysterotomy Tauffer had twelve with fatal results, *i. e.*, a mortality of 22.2 per cent. Regarding the treatment of the pedicle, Tauffer is a partisan of the extra-peritoneal method. In thirty-five other cases, only explorative incisions were made, or after opening the abdomen such adhesions of malignant tumors to the peritoneum or the intestinal walls were found as to make extirpation impossible; of these thirty-five cases, twenty-one terminated fatally sooner or later, whilst fourteen were cured by the operation.

Finally Tauffer mentions seven laparotomies with the following indications: Ancient irremediable inversion of the uterus; ileus caused by carcinoma of the intestines; twice extra-uterine pregnancy at the end of the pregnancy; twice hydronephrosis, and once loosening of adhesions which held the uterus in a retroflected position.—*Centralblat für Gynäkologie*, No. 20, 1889.

A Case of Hemisystoly.—Dr. Dehio demonstrated before the Medical Faculty of Dorpat sphygmographic courses taken from the radial artery and the neck veins of a patient with heart disease, in whose case there had been diagnosed an insufficiency of the mitral with grave compensatory disturbance and secondary relative insufficiency of the tricuspid valve in consequence of the dilatation of the right ventricle. Patient suffered from grave engorgements in the course of the great circulation, general dropsy, ascites, hydrothorax, orthopnœa, and during the last week of his life the well-defined symptoms of hemisystoly of the heart, 80–76 contractions of the heart per minute could be distinctly counted by the aid of the stethoscope, but on the radial artery, as also on the carotid, just half as many pulsations (40–38) could be felt, so that there were two systolic and two diastolic tones for each perceptible arterial pulsation. Besides the systolic tones systolic murmurs could be plainly heard at the apex and at the lower end of the sternum. Simultaneously pulsation was plainly noticeable at the veins of the neck. Pulsation in the liver could not be established because of the ascites. The tracing upon the radial artery shows conclusively that this was a case of alternating pulse, a low pulse-wave between two high ones being distinctly visible in the descending portion of the curve; to be sure, this spot had become so small that the palpating finger could no longer feel it.

The tracing from the neck veins, on the other hand, show plainly two positive pulse-waves following each other rapidly, and separated by a longer pause from the next pair (pulsus bigeminus). The first wave of each pair corresponds with the perceptible radial pulse, the second is also in the neck veins, clearly shorter and almost always lower than its predecessor; only during expiration, when the obstruction in the neck veins became especially severe, the second wave was for a few days just as high as the first of the twin waves, or even a little higher.

This observation confirms the view advanced by Fräntzel that the so-called hemisystoly of the heart must be regarded as the highest stage of the pulsus bigeminus, during which the second wave of the twins becomes so small that it is no longer perceptible in the arteries of the great circulation. That the right ventricle produces alternately a strong and a weak pulse-wave the same as the left ventricle and isochromally with the latter, is demonstrated by the curves exhibited. A hemisystoly as understood by Leyden, where the two ventricles act independently from each other, so that the right one within a given time contracts twice as often as the left, certainly did not exist in this case.—*St. Petersburger Medicinische Wochenschrift*, No. 18, 1889.

A CASE OF HEART THROMBOSIS IN MYOCARDITIS FIBROSA AFTER SCARLET FEVER, AND IMBEDDING OF A PORTION OF THE LEFT VAGUS IN CALLUS CONNECTIVE TISSUE.—SOMMER reports in the *Charité Annalen*, 1888, the case of a boy 10 years old who, nine weeks after recovery from scarlet fever, was taken with symptoms which led the author to suppose a hæmorrhagic nephritis with disease of the heart muscle. Later on symptoms of consolidation above the left lung, œdema of the legs and constantly diminishing diuresis occurred, and the heart symptoms became prominent. The examination of the heart when the boy was first received showed an extending of dulness toward the right, extending 2 cm. beyond the sternal line. The apex beat lies in the sixth intercostal space. In the course of the disease the pulse became alternating, greatly accelerated, 136–144–150, easily suppressible. Death ensued with symptoms of heart failure. At the post-mortem the heart was found to be greatly enlarged, both ventricles being much dilated with numerous parietal thrombi. The myocardium was largely replaced by dense connective tissue. Embolic infarcts in lungs, spleen and kidneys. No nephritis. The left vagus is surrounded by coarse fibrous tissue which originates from caseous and calceous lymphatic glands. The microscope showed numerous granular cells, indicating degeneration in the compressed portion of the vagus. Supported by the investigations of Wasilief regarding the trophic relation of the vagus to the heart muscle, Sommer supposes the changes in the heart to have been caused by the scarlatina and the partial degeneration of the left vagus.—*Centralblatt für Klinische Medicin*, No. 20, 1889.

FORMATION OF PTOMAINES AND TOXINES BY PATHOGENIC BACTERIA.—In a report to the Royal Academy of Sciences in Berlin, L. BRIEGER calls attention to the interest which attaches to the alkaloids produced by pathogenic bacteria, and makes public the results which he obtained by examination of the cultures of typhus bacteria on freshly peptonized blood albumen. He found in it neuridin ($C_5H_{14}N_2$), which is isomeric with cadaverin; furthermore, mydin ($C_8H_{11}NO$), which he had found so far only once in preparing human bodies. This ptomaine forms a picrate (melting-point 195°) crystallizing in broad prisms, a chlorhydrate crystallizing in colorless little plates, an easily soluble chloro-platinat; it reduces a gold solution immediately, as also a mixture of chloride of iron and cyanide of calcium and iron. The free base has a strong alkaline reaction, and the smell of ammonia. Besides these two ptomaines the author obtained several times an extremely poisonous toxine which causes severe purging, sometimes also bloody urine, but has not been examined yet accurately. The author calls attention to the surprising circumstance that no ptomaine causing inflammation or necrosis could be separated from the typhus cultures. Finally he mentions that milzbrand bacilli have an oxyidizing effect and produce some methylguanidin from creatin; but this occurs only when these bacilli are cultivated in bouillon containing peptonized blood albumen; in pure bouillon cultures another ptomaine originates which is not well known yet.—*Centralblatt für Physiologie*, No. 3, 1889.

THROMBOSIS OF THE CAVERNOUS SINUS.—PROF. NOTHNAGEL recently related a case of which the diagnosis was thrombosis of the cavernous sinus. (*Rev. Gén. de Clin. et de Therap.*, No. 26). The patient, aged 70, three years ago suffered from severe pain on the right side of the head, resembling neuralgia of the fifth nerve. Later there occurred diplopia and strabismus, which afterwards was succeeded by immobility of the eyeball. There is now closure of the right eye, œdema of the upper eyelid and right cheek, increase of temperature of that side of the face, and attacks of tic douloureux; anæsthesia involving the same region and also the tongue, conjunctiva, and cornea; vascular injection of the conjunctiva; intense keratitis and iritis. These symptoms referable to involvement of the fifth nerve and all the ocular nerves suggested a localized lesion at the base of the brain and were most likely due to cavernous thrombosis, caused probably by localized chronic meningitis rather than a tumor.—*The Lancet*, July 6, 1889.

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SATURDAY, JULY 27, 1889.

THOMAS KEITH ON FIBROIDS OF THE UTERUS.

In the present number of THE JOURNAL will be found a very comprehensive article by Dr. Apostoli, of Paris, on "The Treatment of Salpingo-ovaritis by Galvanism." In this connection it is very interesting to notice the high estimate in which Apostoli's treatment of fibroids of the uterus is held by so eminent an abdominal surgeon as Mr. Thomas Keith, as advanced by him in an article in the *British Medical Journal*, of June 8, 1889.

Dr. Keith, in the beginning of this article, deals with the assertion advanced by many of the opponents of electricity, to the effect that Apostoli's method is nothing but the revival of an old process, by giving the information that he was an assistant of Sir James Simpson at the time the latter was experimenting with the "so-called 'discussion' of uterine and ovarian tumors," and that now he "doubts if any electricity got into the body at all by the old methods, and, if this did so happen no good could have come of it for the interrupted current was always used."

Since those days he has carefully watched the many attempts to introduce electricity for the treatment of uterine tumors, but there was nothing to encourage him to try any of them. Drs. Kimball and Cutter certainly cured some, he thought, but he has too lively an impression of the risk of inserting large needles through the abdominal wall into the tumor to think of adopting that method. Dr. Keith's watching brought its reward, however, for he says:

"The only treatment not surgical worth speaking about that I have seen do any good, and which at the same time, is one free from danger to life if the treatment be undertaken by one who has respect for a strong electrical current, is that brought before us by Dr. Apostoli. If any one should have held on firmly to hysterectomy it is myself, for my results after it are better than any other. I have, however, thrown over all surgical operations for this new treatment, and the longer I follow it the more am I satisfied. . . . .

"To the surgeon, no doubt, hysterectomy is the good and simple plan. He may have his bad quarter of an hour at the operation, but then he has practically done with the case, and he gets his result quickly, sometimes more quickly than he cares for. If the patient recover there is pleasure all around; if things go badly and the patient die, he bewails his bad luck, as it is called, ... waits a little, and then, though rather unwillingly, does another. He resents any other treatment than that by the knife. He especially resents Apostoli's treatment of fibroids by electricity, for the result is long in coming; it is a slow treatment, requiring great patience, great tenderness of manipulation and much thinking. . . . . But with patience the result is certain. . . . . There is no mutilation, a thing abhorent to most women. . . . . It puts a woman with a fibrous tumor, who suffers much, into the position of a woman with a fibrous tumor who does not suffer or may be even unaware of its presence. It does not bring about the disappearance of the tumor, or it does so very rarely, but the size is lessened more or less—one-half, one-third, two-thirds. . . . . Tension is taken off everywhere, all around, and bladder irritability from pressure, a common cause of distress, is relieved. In a word, the woman is made well, her whole life is changed. All this can be done without danger to life, and if there be pain during the time the current passes the fault is in the operator. What more does a reasonable woman who has suffered much desire or need?

"What have those to offer in place of all this who have so bitterly opposed this treatment, who with unlimited material stand aside and will not take the trouble to investigate the matter for themselves, but wait till someone else does it for them, who make only an outcry if by chance they hear of any accident during the progress of the treatment of any case, and who go frantic over the rumor of a death, or worse still, who proclaim they know of deaths that never happen? These men have absolutely nothing whatever to offer in the bad cases, and only hysterectomy in such tumors that will come out more or less easily, so as to be treated by the extra-peritoneal method of operating. I have seen not a few cases of bad bleeding fibroids since I came to London, almost everyone had consulted one or other surgical authority on the subject of operation. These were invariably told that nothing would do them any good but the removal of the tumor; but in their special case the local difficulties were too great, or they had let their strength go down too far for such an operation. The very feeble and bad cases, with masses of tumor blocking the pelvis, with absence of cervix, and opened-out broad ligaments, would seem to be

let alone. Hysterectomy then, at best, would appear to be a most doubtful remedy for a certain number of cases, and these not of the worst sort. On the other hand, the worse the case, the more feeble the patient, the greater the loss of blood, the more marked is the result of electrical treatment. Given a woman with a large bleeding fibroid, blanched almost to death from years of hæmorrhage, and see her some months after this treatment is completed, you would scarcely recognize her, the improvement is so great." . . . .

In an experience with his method in the treatment of a large number of cases, Dr. Keith has to mourn the loss of but one life, and of this he says:

"I do not say that the treatment was of itself the cause of death, which, I am satisfied, need not have happened; and in this I am borne out by the opinion of the patient's brother, a medical man. . . . .

"The old spirit that at one time would have no abdominal surgery still unfortunately lingers amongst us. Electricity in any form, when applied to the cure of disease, is set down as pure quackery by many medical men, simply because they know nothing about it, and won't take the trouble to learn for themselves what to many is rather a hard study. . . . .

"What I now plead for is that, for a time, all bloody operations for the treatment of uterine fibroids should cease, and that Dr. Apostoli's treatment, as practiced by him, should have a fair trial. Those who have hitherto most resisted the introduction of electricity are the surgeons who are the best competent to carry it out. They are accustomed to manipulate in the pelvis, and they will not make mistakes in the diagnosis, or make them as seldom as it is possible to do. Hysterectomy, remember, which is performed every day for a complaint that rarely of itself shortens life, kills every fourth or fifth woman who is subjected to it. This mortality must cease; it is not a question of surgery, it is a question of humanity. Every time that any disease can be cured without resorting to a bloody operation such as hysterectomy, progress is made in our art, and there is a gain to humanity, while surgery is the better for being purged of a deadly operation. It may seem strange to some that after the results I got in hysterectomy—results that almost made it justifiable—I should now begin to throw stones at the operation instead of trying still further to improve upon it; and but for Dr. Apostoli, I would now be doing so. I would give something to have back again those sixty-four women that I did hysterectomy for, that I might have a trial of Dr. Apostoli's treatment upon them; and I would give something never to have had the wear and tear of flesh and spirit that these operations cost me, for in scarcely one of them was the operation simple.

"I have said my say, and it must not be forgotten that the opinion here expressed as to the value of Dr. Apostoli's treatment is not that of an unsuccessful surgeon, but is the deliberate opinion of one who was the first to lower to a minimum the mortality that so long followed abdominal surgery, and who, by the best results in hysterectomy—results that Dr. Playfair is pleased to call almost phenomenal—still retains the position."

INSANE ASYLUM INVESTIGATIONS.

Recent events, too familiar to our readers to call for special mention, have set in motion one of those periodical waves of popular distrust in regard to the treatment of the insane in public institutions, which from time to time sweep over our country, leaving behind them some wrecked reputations, but too often, accomplishing little but destruction. While the excitement lasts the innocent are apt to suffer with the guilty; when it subsides things settle back into very much their former condition. We do not propose, at present, to discuss particular cases, but to suggest some general considerations which it seems to us well to bear in mind when such charges are made.

In the first place, there is no class of cases in which the maxim that a man is to be held innocent till he is proved guilty, is more applicable than this. The Superintendents of asylums for the insane, as a class, are by no means inferior to the average of our profession, either in attainments, character or disposition. Their position exposes them to constant assaults upon their reputation. No degree of humanity or tact will protect them from charges founded in the delusions or malice of their patients, and those who are most faithful and vigilant in guarding against abuses and enforcing discipline are most certain to incur the ill-will of lawless and vicious subordinates. Accusations coming from such sources may demand investigation, but they should be looked upon with suspicion, and if they are eagerly caught up and assumed to be true by the public, men who value their reputation will be likely to seek some other employment. Even the much-abused attendants are entitled to the same charity. In all well-regulated institutions they are selected with great care among numerous applicants; they are carefully instructed in their duties, and whatever may be the shortcomings of some of them, it is safe to say, that as a class, they are caring for the unfortunates under their charge with more skill and patience than most of their critics would exercise in their place.

In the second place, when abuses are discovered, the responsibility should be placed where it belongs. If an institution of this kind is made a part of the spoils of partisan politics, if its funds are used to enrich mercenary politicians, and its offices to reward their heelers, the community

which allows such a state of things has no occasion to be surprised or shocked if its insane are crowded into insufficient and unsafe quarters, if they are hungry and naked, if they are neglected and abused by incompetent and vicious attendants. The guilt is not confined to those personally concerned in such abuses, it is shared by those who, actively or passively, have abetted the system which gave them their opportunities for mischief. To rest content with their punishment while the system remains unchanged would be merely setting another set of wolves to watch the sheep. It may be said in general that attempts to combine a poor-house and an asylum for the insane under the same management, have not usually had very satisfactory results, at least, so far as the latter is concerned. The standard is apt to be set by the accommodations and treatment allotted to paupers, and whether sufficient for them or not, it is not suited to the needs of the insane.

Finally, it is, in our opinion, questionable whether, in some instances, the well-meant efforts of friends of the insane to improve their condition have not had results which were not foreseen nor desired. The abolition of mechanical restraint, for instance, has been advocated in some quarters with an enthusiasm which seemed to make it an end to be obtained at any cost, rather than a means of securing the comfort and improvement of the patients. It might be imagined, from some of the accounts which have been published, that interference with the personal liberty of the insane was the cause of all their misconduct, and that an asylum for their care and treatment would run itself, to the satisfaction of all concerned, if the patients were only allowed to do as they pleased, without interference, except by way of friendly suggestion from physicians and attendants. Now the fact is, that some of the *insane* are no more amenable to reason than the *sane*. Tact, patience and kindness will work wonders in many cases, but there are those who can only be restrained from mischief by physical force in one form or another, and others with whom the only alternative is fear. Attendants are expected to control their patients. Their reputation, and the comfort and safety of their inoffensive patients, as well as their own, depend upon their keeping the disorderly and violent in subjection. To struggle, for hours at a time, day after day, with a powerful man, or to be continually subjected to assaults from one who understands and presumes upon his impunity, is a pretty severe strain upon the mildest disposition, and, though unfortunate and wrong, it is not strange that human nature does not always endure the trial. We have reason to think that in some cases where the use of mechanical restraints has been forbidden in the quiet and order of the wards, so gratifying to officers and visitors, has been due in part, to the clandestine use, by attendants, of still more objectionable means.

The proper care of the insane is a work of sufficient difficulty to task all the resources of the best mind. Routine and inflexible rules, whether self-imposed or dictated from without, will often stand in the way of the best results. The physician may be helped by the suggestions or example of others, but if he has not sufficient intelligence and humanity to be trusted with the care of his patients, the probability is that little will be gained by hedging him about with vexatious restrictions; if he has, they are more likely to do harm than good.

It is well that those who have the care of this most unfortunate and defenseless class should feel that abuses and neglect cannot pass unknown or unpunished, but public opinion, in such cases, should be not only a terror to evil doers, but a praise to them that do well. Nothing can be, in the long run, less for the interest of the insane than indiscriminate condemnation of all who are engaged in caring for them.

EDITORIAL NOTES.

HOME.

The American Rhinological Association will hold its Seventh Annual Meeting at Chicago, Aug. 28, 29 and 30. The Committee on the Examinations of the Inmates of Insane Asylums will make their report on "The Relations of Rhinal Inflammations to Mind Affections" at this session.

Leprosy in New Orleans.—A despatch to the daily papers, dated July 21, says: Investigation of the case of the young man, James Kavanaugh, in Algiers, who is suffering from tubercular leprosy, discloses the fact that his companion and associate a few years ago was a man named

Mallegar, who resides in the Third District, near the mint. This man was afflicted with the loathsome disease and Kavanaugh was constantly in his company, at times ate with him and drank out of the same vessel that he did, and it is evident that he contracted the disease by so doing. There are now under observation several suspicious cases which the Board of Health will send a corps of experts to Algiers to inquire into.

THE STATE UNIVERSITY OF TEXAS will soon have a fine building for its Medical Department. Galveston recently appropriated $25,000 towards its erection.

DR. HENRY M. HURD, of Pontiac, Mich., now Superintendent of the State Lunatic Asylum at Pontiac, has been appointed Superintendent of the Hospital of Johns Hopkins University.

THE TREATMENT OF SUNSTROKE.—Dr. Wm. F. Waugh contributes to *The Dietetic Gazette* the following: In true sunstroke we have succeeded best at the Medico-Chirurgical Hospital by giving antipyrin internally or by hypodermic, in doses up to 30 grains, and applying ice energetically, externally and in the rectum, until the temperature descended to the level of safety. The great majority of cases, however, are really of exhaustion, due to heat and free drinking, with consequent perspiration and loss of salts. Small doses of brandy, ammonia, wine of coca, selecting a really efficient variety, and hot coffee are efficacious at first; followed by a hot bath, hot beef-tea, quinine, or Huxham's tincture. The use of ice-water gives rise to unquenchable thirst. Free imbibition of fluids causes loss of appetite. An excellent beverage for Summer is thin oatmeal gruel, with salt, but no sugar, taken as hot as can be swallowed.

TENNESSEE MEDICAL EXAMINING BOARD.—*The Times-Register* says: Tennessee has now a Medical Examining Board, and the Governor with singular good judgment has given to the State Medical Society the privilege of recommending three members of this Board, he to nominate the fourth regular practitioner. Elected in such a manner the Board is likely to be both competent and just.

FOREIGN.

IN SPAIN the Sociedad Española de Higiene has formulated an appeal to the authorities asking for the establishment of a public system of disinfection, and the rigorous enforcement of the measures for that purpose approved of by the Vienna Congress of Hygiene.

IN GREAT BRITAIN the recent election to fill the vacancies in the College of Surgeons caused by the retirement of Sir James Paget, Mr. Hulke and Mr. Heath, resulted in the return of the two latter gentlemen, who sought reëlection, and Mr. Howse. At the last meeting of the British Laryngological and Rhinological Association, Dr. Philip Smyly, of Dublin, was elected President for the coming year, and the following gentlemen were elected Honorary Fellows of the Association: Professor Voltolini, Breslau; Professor Massei, Naples; Dr. Solis-Cohen, Philadelphia; and Dr. Fauvel, Paris. Hundreds of applications have been received for the position of Director-General of the Naval Medical Reserve. *The Provincial Medical Journal* says: A boy recently died of hydrophobia near Bradford—at least so it was said at the Coroner's inquest; but, strange to say, the dog which inflicted the bite also appeared at the inquiry, sound and healthy, from which we draw the conclusion that the boy did *not* die of hydrophobia. The British journals are strongly advocating the study of shorthand by medical students.

PROF. FRANCIS CORNELIUS DONDERS, the eminent ophthalmologist, died recently at the age of 71.

AN INTERNATIONAL COURTESY.—The *British Medical Journal* pays a well deserved compliment to Dr. John S. Billings, reciting the valuable work which he has accomplished and the honors to which he has attained. It is gratifying to the American profession that such an able man is numbered in its ranks, and to know that he is so well appreciated in other lands.

PROFESSOR BILLROTH completed his sixtieth year on April 26, but was absent from Vienna at the time. On his return the students and his friends prepared a splendid ovation for him. Dr. Sjsrgerwitch, Minister of Public Instruction of Servia, presented the Professor with the Grand Cross of the St. Sava Order, and the Vienna students presented him with a medal which bore on one side his portrait, with these words: *Theodorus Billroth, ætatis suæ* lx; on the other: *Medico*

artifici, viro optimi pietate conjuncti discipuli et sodales. Professor Billroth was also the recipient of several other distinctions on this occasion.

A PHILANTHROPIC PRINCE.—The Duke Charles Theodore of the house of Bavaria is well-nigh worshiped by the poor peasants about Meran, in the Austrian Tyrol, for his goodness of heart and his actual services in their behalf. They call him "the good Duke-Doctor." He annually offers his gratuitous help to the poor who have need of eye treatment. It is stated that this spring he, with an assistant surgeon, saw 1,091 cases, many of them surgical. Cataract operations to the number of sixty-eight were done, all of them primarily successful.

This is, indeed, princely conduct, and a remarkable improvement upon the kind of surgery done by many of his illustrious ancestors, whose work with cutting implements was chiefly limited to the field of battle; they were destructive in their intents and tendencies, he is reconstructive. And so he may be considered to mark a new era among the hereditary rulers of Europe.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Fortieth Annual Meeting. Report of Sections.

(*Concluded from page 68.*)

Section on the Practice of Medicine, Materia Medica and Physiology.

FOURTH DAY, JUNE 28, 1889.

DR. J. G. TRUAX, in his paper on *Ulcerative Endocarditis*, reported six cases only two of which were diagnosed before death, thus demonstrating the difficulty in diagnosis. The writer was inclined to believe that the disease was due to microörganisms, though such had not been discovered.

DR. MARY E. BALDWIN read a paper entitled *Stomach Rest and Cleanliness*, in which, with the reports of cases, was demonstrated the benefit derived from the method of washing out the stomach and the judicious management of diet. Measures were recommended for similar troubles in children.

DR. W. S. WATSON read a paper on *Addison's Disease*. After a thorough review of the pathology and etiology of the affection, a case illustrating its symptomatology and course was presented to the Section by the essayist. A post-mortem had been obtained and an excellent specimen, demonstrating the changes in the supra-renal capsules, obtained.

Section on State Medicine.

FIRST DAY, JUNE 25, 1889.

DR. P. H. MILLARD, of Minnesota, Chairman, presented the *Report of Committee on Uniform Medical Legislation in the United States.*

Dr. Millard's subject was *The Legal Restriction of Medical Practice in the United States.* He finds this country sadly in need of good medical legislation. North Carolina was the first State to enact anything like satisfactory medical laws. He praised the State of Illinois for the work done in this direction, ascribing great credit to the efforts of the Secretary of the State Board of Health. As the results of hard work in Minnesota the relations have been so altered that now he is able to announce, for the first time, that the proportion existing between the medical profession and the general public is as 1 to 1,300.

The Committee in its report recommended that such legislation should be secured as would provide for a careful preliminary examination, a definitely prescribed course of study, an examination upon presentation of diplomas, and adequate power for the revocation of licenses.

In the discussion of the report DR. N. S. DAVIS entered an eloquent plea in support of the proposed measures.

DR. MILLARD said that a very carefully prepared law had been framed, and that it was hoped that the various States would enact similar legislation, so that the regulations for medical practice might be practically the same throughout the country.

DR. GIHON said that the most important consideration was the matter of preliminary education.

DR. SCAMMON, of Tennessee, agreed substantially with the views expressed by the others, but was in favor of having the State Board elected by the profession.

DR. ARMSTRONG suggested that Dr. Scammon misunderstood the matter, as the manner of constituting the Board was not set forth in the resolutions.

DR. STORER, of Newport, said that the whole matter had been a live question in Rhode Island for several years; that an irregular practitioner had been cleared of a charge of malpractice on the ground that a practitioner was only obliged to exercise a fair degree of skill and that the law did not require the physician to know very much. He was in favor of the proposed changes.

On motion the resolutions were adopted and committed to the general Association with the request that they be transmitted to the various States for their consideration.

DR. J. B. HAMILTON explained the disinfecting apparatus in use in New York, illustrating his remarks by means of a chart.

THIRD DAY, JUNE 27.

DR. HARVEY, of New York, read a paper on *Sanitary Disposition of the Dead.* He said: This subject is one that has long received the attention of the Association, but it has made little advance among the masses. Could a picture of what is going on below the surface of the earth in our graveyards be seen in contrast with the life above it would be disgusting and horrible in the extreme. Dr. Gross said that it took from forty to sixty years for the dead body to decay. In Paris frightful epidemics have been traced to their source in the cemeteries. In Italy experiments made by inoculation with germs from air polluted by the emanations from the dead produced typhus in animals. Gravediggers have been known to die almost immediately upon entering vaults where dead bodies were kept. The facts of water pollution by this means are well known. Cremation is of course extremely obnoxious to some, but a method of disposing of the dead has been discovered which, while effectual in the reforms desired, does not offend the sensibilities of the most delicate. This is the method of dessication, whereby bodies laid away in elegant mausoleums can be exposed to the action of hot, dry air, with the effect of removing, in the course of three or four months, all the more volatile elements of the body. In this way all danger of epidemics from this source is removed. The method is not open to the objection made by jurists to cremation, viz.: that it destroys all evidence of crime.

Discussed by Drs. Formad, of Philadelphia; Carrol, of New York; and Harvey.

DR. MARCY, Chairman of the Committee on *The Coroner System in the United States*, then made a brief oral report of the work accomplished. He said that the Committee had accumulated material enough for a good-sized volume. The existing laws, he said, are very objectionable, both from a medical and legal standpoint; in Massachusetts, Rhode Island, and Connecticut, however, he was glad to report that material improvements have already been made.

DR. G. H. ROHÉ, of Baltimore read a paper entitled *The Necessity for Sanitary Supervision of Schools.* Dr. Rohé directed attention to the fact that nearsightedness increases in proportion to the grade of the schools, both in regard to frequency and degree of severity, the condition being much more frequent and serious in the higher schools. The causes are largely dependent upon the arrangement of the seats and light. Large clear type and good paper should be used in all text-books. The relations as regards pulmonary consumption and spinal deformity were also considered, five-sixths of the cases of the latter disease having been shown to begin during school life. Nervous and digestive derangements received attention from the reader, who advocated the cultivation of more muscle and less brain. Contagious diseases have sometimes to be met by temporary suspension of schools. Vaccination regulations are not well carried out. Heating and ventilation require adequate supervision. To secure the proper regulation of these important considerations an expert officer should be appointed whose duty it should also be to examine plans for school buildings; to inspect all buildings in use from time to time from an hygienic standpoint, to look after the proper vaccination of the pupils, to guard against the spread of contagious diseases, to enforce the adoption of text-books of suitable type. Such an inspector should be required to visit every room at proper intervals of time, to test the pupils' eyes every year, and to make reports once a year to the School Board. For such work an excellent hygienist is needed. Dr. Rohé in his observations has found that School Boards are anxious to know just what their duties in these various directions really are.

Discussed by Drs. Schenck, of Kansas, and Lincoln, of Massachusetts.

Resolutions regarding the formation of a committee to inquire into the advisability of securing such legislation as Dr. Rohé had suggested were introduced by Dr. Lincoln.

The discussion was then resumed and entered into by Drs. Pinkham, of Massachusetts; Bell, of New York; and Gihon, U. S. N.

The resolutions were then adopted, and Drs. Lincoln, Rohé, Reed, and Pinkham were constituted a committee to take the matter in hand.

DR. CARROLL, read a paper on *Disposal of House Refuse.* He drew attention to the fact that the danger from excreta is chiefly after fermentation has taken place, and this danger is increased by the influence of certain diseases. Cesspools and privy vaults are extremely dangerous to health. Disinfection of these by earth or charcoal is efficient, but impracticable in large cities. Such refuse may be rendered innocuous by spreading it on the ground in thin layers with free exposure to the air. House garbage, however, is the greatest bane we have to deal with. This should be burned, and much of it can be disposed of in the kitchen range.

DR. GIHON moved a vote of thanks to the reader of the paper, which was promptly carried.

DR. SWARTZ, of Rhode Island, read a paper on *The Control of Epidemic Diseases.* He believes that chemists, bacteriologists and veterinaries should be made assistants to the health authorities by which the means of controlling epidemics would be greatly strengthened. He described the spread of two epidemics in Rhode Island. In the first one he made bacteriological and other

examinations in various directions without finding the bacilli of typhoid fever, although the cases had been reported as of typhoid origin, but a water bacillus was found in the milk used by the sick, and was thence traced to its origin, in the water supply of the cattle. The pasturage was changed with the effect of checking the epidemic. He is of opinion that in this epidemic the poisoning may have been due to the formation of a ptomaine. The other epidemic referred to occurred in Providence, the origin was found in typhoid stools which had been thrown on the river bank.

Other papers were read by title.

SECOND DAY, JUNE 26.

[The discussions will be printed with the papers in the order in which they are published in THE JOURNAL.]

DR. J. B. LINDSEY, Chairman of the Section, delivered an Address on *Popular Progress in State Medicine*. (See page 73.)

DR. GEO. MINGES, of Dubuque, read an interesting paper on *Bacteriological Examination of Several Native Mineral Waters in the Bottled State*.

The author finds that the bacteriological examination of drinking-water has become more important than the chemical analysis. Water from pure springs is free from bacteria especially if it contains free carbonic acid. In bottled water there are often very many. These are derived chiefly from the corks and from unclean bottles. Sulphuretted hydrogen inhibits the development of bacteria to some extent. Aerated bottled water contains more bacteria than that which is not aerated. Bottles should be cleansed by boiling water or steam.

DR. CHAS. V. CHAPIN, of Providence, R. I., read a paper on *The Purification of Drinking-Water for Cities*.

Dr. Chapin discussed this subject in a very thorough manner, confining his remarks, however, mainly to the purification of water by filtration. He believes that domestic filters, with the exception of the very expensive Pasteur filter, are worse than useless. Sharp, fine sand is the best practical agent for use, and fresh sand is less useful than that which has been in use for some time, because after being in use for some time organic matter covers the particles of sand, and this serves to arrest the bacteria. Water has been filtered on a large scale, and in Berlin, London, and many of our own cities, water containing 11,000 microbes per ccm. before filtration has been found to contain only 179 after. The process of filtration on a large scale has been facilitated by the coagulation produced by the addition of a small amount of alum.

Discussed by Drs. Smart, U. S. A.; Mercer, of Syracuse; Minges, of Dubuque; Baker, of Lansing; Mercer and Chapin.

DR. N. S. DAVIS, of Chicago, presented the *Report of Standing Committee on Meteorological Conditions*.

As regards the Collective International Investigation of Disease he was obliged to say that the Committee had scored a failure, but in other lines of investigation he could say that he had accumulated a mass of valuable statistics. These were the results of observations obtained from the Signal Service, from a chemical daily examination of the atmospheric air, and from the reports of physicians as to the exact date of the beginning of attacks of acute diseases.

On motion the Section resolved to recommend that the Association continue the Committee, but that it be excused from the International Collective plan. It was also resolved to coöperate with the various State Boards of Health.

DR. A. L. BELL, of Brooklyn, read a paper on *Stamina*.

Dr. Bell stated that it was his object to reduce the importance of such expressions as susceptibility, heredity and predisposition. Health is something more than the mere freedom from disease. Immunity from disease is largely due to "stamina." People who live under conditions of life requiring little energy do not live to old age, and heredity is amenable to the same organic forces as feebleness of constitution in general. Offspring of poorly nourished parents are scarcely less liable to pulmonary consumption than the offspring of those affected with that disease.

The election of Section officers was then held. Dr. J. B. Hamilton, U. S. Marine-Hosp. Service, was elected Chairman, and Dr. F. S. Bascom, of Utah, Secretary.

DR. H. B. BAKER, of Michigan, read a valuable paper on *The Climatic Causation of Consumption*.

In a very extensive and elaborate consideration of this subject Dr. Baker laid down the following propositions: 1. Low moist ground tends to consumption. 2. Cold dry air has a similar tendency. 3. The bacillus is acknowledged as the proximate cause of the disease. In a somewhat elaborate argument, supported by a vast array of facts, the reader undertook to reconcile these apparently irreconcilable ideas. Dr. Baker illustrated his subject by a large number of tables with which his hearers were furnished. Not the least interesting of his statements was the one that whereas 73 per cent. of mankind are inoculated with tuberculosis, only 13 per cent. die of the disease.

Discussed by Drs. Flick; Lyster, of Michigan; Bell, of Brooklyn; N. S. Davis, of Chicago; Rives, of New York; Hibbard, of Indiana; and Minges, of Iowa.

DR. F. S. BASCOM, of Utah, read a paper on the *Climatological Characteristics of Salt Lake City*.

Dr. Bascom presented a very attractive picture

of the advantages offered by his city, it having proved itself to have the requisite qualities of dryness, equable temperature, moderate altitude, sunshine, and freedom from high winds and electric storms.

DR. BAKER criticised the author in that he had given only the *relative* and not absolute humidity, and had not supported his claims with tables of sickness and death.

Section on Ophthalmology.

FIRST DAY, JUNE 25.

The meeting was called to order at 3 P.M., Dr. C. E. FROTHINGHAM, of Ann Arbor, in the Chair.

The Chairman read an excellent address, in which he emphasized very strongly the necessity of discussing freely many questions in ophthalmology about which there is an apparent agreement, but which, notwithstanding, are unsettled. Various of these subjects were mentioned, and his suggestions were eminently practical.

DR. ROBERT TILLEY, of Chicago, read a paper on *What can we do to induce the Government to make the Census of 1890 contribute efficiently to a clear conception of the causes of Blindness.* After stating that Dr. Magnus had in Germany succeeded in obtaining reliable reports on the causes of blindness, and having enumerated these causes, Dr. Tilley strenuously advised that the same system be adopted in this country, and for this purpose he presented the printed blanks used by Dr. Magnus. The main object of the paper was to have an effort made to ascertain the causes of blindness and then attack them more intelligently.

Considerable discussion followed this paper, in which Drs. Connor, Scott, Jackson and Thompson took part. Finally it was moved and carried that a committee be appointed by the Chair to request the General Assembly to authorize the Section on Ophthalmology, together with the American Ophthalmological Association, to confer with the Census Committee. Drs. X. E. Scott, Robert Tilley and J. Chisholm were appointed on this Committee.

DR. A. E. PRINCE, of Jacksonville, Ill., read a paper on *The Prevention of Pain and the Improvement of the Stump following Evisceration of the Eye.* Having failed in preventing pain in the stump in five cases of evisceration, Dr. P. was led to try carbolic acid, applied to the anterior portion of the stump, with very good results, He had used the glass ball (artificial vitreous), but was not satisfied, and has finally adopted the system of filling the empty shell with iodoform and packing it in with cotton, and then inserting sutures. He is well satisfied with this method. Dr. Prince also exhibited a book for keeping the record of patients in such a way that they can be easily found and tabulated.

DR. JACKSON stated that Dr. Williams, of Boston, was the first to record a case of evisceration. Dr. Williams was thereupon asked to speak on the subject. He stated that he preferred evisceration on account of its safety. That for the prevention of pain he used cold-water applications; and that he was pleased with the result.

The third paper was read by DR. W. H. WILLIAMS, of Boston, on *Advances in our knowledge of some Cerebral, Ocular and Intra-Orbital Lesions which facilitate the Diagnosis and Treatment of Important Diseases.*

In this paper a number of very interesting cases of ocular disturbance produced by brain and kidney disease, which showed how important a part a careful examination of the eye plays in making a careful diagnosis of these diseases, for in many of these cases internal disease was not suspected until the ophthalmoscope revealed its symptoms in the eye. Dr. W. also reported some very interesting cases of blindness following facial erysipelas.

Discussed by Drs. Chisolm, Knapp, Leartus Connor and Noyes.

DR. J. L. THOMPSON, of Indianapolis, then read a paper entitled *Some Cases of Inflammation and Atrophy of the Optic Nerve, with Special Reference to Etiology and Prognosis.* After reporting a number of interesting cases and commenting on the difficulty of making a prognosis, and in tracing the disease to its origin. He read the following conclusions as the result of his observation: 1. Progressive atrophy with no evidences of former inflammation gives bad prognosis. If one is affected the other remaining for several months unimpaired, prognosis favorable for this eye. 2. In atrophies following pernicious intermittent fever, improvement sometimes takes place when least expected. Inflammation of the optic nerve resulting from violent exercise, disturbances in menstruation, etc., occurring in plethoric persons admit of very favorable prognosis. Inflammations of the optic disc caused by brain tumors often improve so much that one is liable to doubt his diagnosis or to modify views as to prognosis, but death is the result, with few exceptions.

This paper was discussed together with that of Dr. Williams.

It being quite late it was moved and carried that the reading of papers be postponed until Wednesday at 3 P.M.

The Committee for Nomimination of Officers for the next meeting was appointed. Drs. X. E. Scott, A. E. Prince and J. Chisolm were placed on this committee.

The meeting then adjourned.

SECOND DAY, JUNE 26.

The meeting was called to order at 3 P.M., DR. G. FROTHINGHAM in the Chair.

DR. E. J. GARDINER read a paper on the *Non-*

Surgical Treatment of Strabismus Convergens. After stating its advantages, and making manifest the dangers of hasty operative interference, he reported twenty-five cases in which the only treatment used was correction of ametropia and atropine, the orthoptic measures having been omitted experimentally. The correction was over 50 per cent. of all cases recorded.

Discussed by Drs. H. Knapp, P. D. Keyser, J. L. Thompson, R. Tilley, G. Frothingham, S. C. Ayres, J. Chisolm and Geo. Stevens.

Dr. Leartus Conner then read a paper on *Tobacco Amblyopia*, which proved to be very interesting, because a full history was given of two cases, where the trouble supervened in total abstainers, one a gardener, the other a clergyman. Both were typical cases, and both recovered by leaving off smoking and using strychnia. Dr. Conner stated that he had not been able to find a well authenticated case of alcohol amblyopia where tobacco could be excluded, and believes that tobacco causes the trouble. He then propounded a number of questions about which different opinions are entertained by ophthalmologists, one of them the etiology of central scotoma.

Discussed by Drs. H. Knapp, Myles Standish, Noyes, P. D. Keyser, J. Chisolm, Blitz, and E. J. Gardiner.

Dr. S. C. Ayres read a very instructive paper on *Tumors of the Optic Nerve.* After reviewing the literature on the subject he proceeded to give a history of two cases, with microscopical examination of the tumors. The first case was a little boy who presented all the characteristic symptoms of intraorbital tumor. It was removed and proved to be a myxosarcoma, which began in the connective tissue of the optic nerve sheath. The lad remains well. The second patient was a young lady, with a large-sized myxosarcoma of the optic nerve sheath. This young lady died six months after operation from typhoid fever. Dr. Ayres thinks that the majority of these tumors are of the myxosarcomatous variety, that they spring from the open nerve sheath, and that the prognosis is favorable.

Dr. P. Keyser reported two cases of this disease operated upon many years ago, who are still alive and well.

Dr. J. A. Lippincott operated on a case four years ago. The lady is doing very well.

Dr. Thompson stated that he saw Dr. Williams, of Boston, operate on one, and Dr. Hamilton, of Ohio, upon another, with good results.

Dr. Julian Chisolm then read a paper on *The needless and annoying Restraints after Eye Operations.* He stated that confinement in bed was unnecessary even in iridectomies and cataract operations. The dark room he had discarded, using for his cataract patients a moderately darkened room—a good daylight to make examinations of the operated eye. Antiseptics he thought unnecessary if thorough cleanliness was enforced. For the eye bandage he has substituted the isinglass entirely, and obtains excellent results by following the more easy method. He does not restrict the diet, allowing the patients to indulge in their regular habits. The securing of the hands after cataract operations he considered entirely unnecessary.

The next paper being on the subject of cataract, the discussion was deferred until after it was read. Its title, *Glaucoma Fulminans after Operations.* The writer, Dr. P. D. Keyser, reported two cases in which, after a perfectly smooth and uncomplicated operation for extraction was performed, at the end of six days in one case, on the third day in the other, sudden and severe pain was felt, and when the eye was examined, the characteristic picture of glaucoma fulminans was discovered. The hæmorrhage in both cases was copious. In the first case the operation had to be postponed for a few days, and the result was a loss of sight; in the other case the iridectomy was immediately performed and good vision was restored. Dr. Keyser was at a loss to explain the cause. He recommended the opening of the posterior capsule.

Discussed by Drs. Ayres, Tilley, Jackson and Knapp.

The papers of the following gentlemen were called but, the writers being absent, were passed: Drs. Eugene Smith, of Detroit; Le Roy Dibble, of Kansas City; J. H. Thompson, of Kansas City; Dudley Reynolds, of Louisville, Ky.

On motion the hour of meeting for the next meeting was made 2:30 P.M.

The meeting then adjourned.

Third Day, June 27.

The meeting was called to order by the Chairman, Dr. Geo. Frothingham, at 3 P.M.

The Chairman announced that Dr. S. C. Ayers, of Cincinnati, had been elected Chairman, and Dr. E. J. Gardiner, Secretary, of the Section for the ensuing year and that the next meeting of the Association would be held at Nashville, Tenn.

Dr. J. E. Colburn, of Chicago, then reported *Two Cases of Complications Arising During Cataract Operation.*

In the first case, after making a perfectly smooth section of the cornea, and previous to making the iridectomy, the whole contents of the eye escaped. A grayish substance was afterwards discovered in the eye; on the following day a large hæmorrhage filled the eye.

The second patient was a man in good health. Mature cataract, central perception was very poor, peripheral perception good. While making incision noticed bead of vitreous, but succeeded in making iridectomy, and removing the lens with no further complication. While patient was resting quietly after operation he suddenly cried out

with pain. Examination revealed a condition similar to that of the first case. The eye was subsequently enucleated. A calcified ring was discovered around the optic nerve.

DR. KNAPP was then requested to report on his experience in opening the capsule while making the corneal section. Dr. K. complied with the request by reading a paper which he had prepared for the *Archives of Ophthalmology*. He stated that he had tried to open the capsule while making the corneal section in sixty-four cases. In sixty-one he had succeeded. In three he found difficulty. The first case in which difficulty was experienced was one of hypermature cataract. Dipped point of knife into capsule, but it did not cut and the lens would not come out. Made peripheral capsulotomy and extracted lens without difficulty. Healing without reaction, vision $\frac{20}{40}$. No secondary operation was made. 2. Point entered capsule but could not cut through, it being very tough. Had to draw the knife back, the iris fell before the knife and was cut. Iridectomy was performed, and some vitreous escaped. The wound healed kindly. Vision $\frac{20}{200}$. 3. Ordinary cataract, anterior chamber very shallow. Point of knife punctured iris, had to draw the knife back and cut iris. Healing took place without complication. Vision good.

The advantages of the operation are that it simplifies the operation by merging two steps into one, and that one instrument is dispensed with, thus diminishing the danger of infection. If the simple operation is performed the knife is the only instrument that enters the anterior chamber. The disadvantages are: That even under the most favorable circumstances the operation is difficult, by reason of the change in the direction of the knife. When the anterior chamber is shallow, the pupil narrow, or the cataract hypermature, the difficulties are much increased. Dr. Knapp thinks there is no cogent reason for the operation.

Then followed a lengthy discussion on many details of extraction of cataract and secondary division of the capsule, followed mostly in questions addressed to Dr. Knapp, which he answered. Our space does not permit us to give a full report of all these remarks. The principle questions were: Whether Dr. Knapp would perform secondary operation if the patient could read? Answer—Yes; because we should strive for the very best results obtainable. How soon after the first operation did he perform the secondary division? Answer—From three to six weeks, preferred a little more time to elapse. Sometimes it could be done after the thirteenth day. Was the operation performed by ordinary daylight? Answer—No; always by focal illumination, which is the only way to thoroughly illuminate the field and discover the best place for the incision.

A paper on *The Ametropie and their Relation to Insufficiencies of the Recti muscles*, by Dr. Wright, of Columbus, O., and also one entitled, *Embolus of the Inferior Branch of the Retinal Artery Visible with the Ophthalmoscope; Disappearance of Embolus and Recovery of the Greater Part of the Field Under Massage and Nitrate of Amyl*, by Dr. H. Gifford, of Omaha, Neb., were read by title.

DR. J. E. COLBURN requested that his paper on *Insufficiencies of the Recti Muscles, with Report of Cases*, be read by title, because it was on the same subject as that of Dr. Stevens, of New York, and that he would report one of his cases in the discussion of Dr. Steven's paper. Dr. Colburn's request was granted.

DR. G. T. STEVENS, of New York, then read a paper entitled, *Respecting the Determination of the Deviations in Strabismus and their Treatment.*

Several cases were reported illustrating the important part which the vertical deviations play in the production of strabismus, and also showing the importance of detecting these deviations. He then concluded by calling attention to the following principles here briefly stated and abridged:

Results of examination for strabismus should be expressed in angles and not in linear measurements. To this end diplopia must be recognized and the double images carefully located. In cases of moderate strabismus this can be accomplished, with patient and intelligent effort. Extreme cases should be converted into moderate cases for better observations. The relative position of the double images is sometimes contrary to well-known laws, and unless the surgeon is on his guard, may be misleading. These exceptional positions of the images should lead us to the conclusion that the case is probably one of hypertropia. The unequal tension of the two pair of superior and inferior recti is often responsible for an apparent converging or diverging strabismus. The standard operation for strabismus by reason of its disabling effect upon the severed muscle, is an obstacle to a perfect result.

Graduated tenotomies, in which no tendon is disabled from performing the full required rotation of the eye, combined with tendon resection of the opposing muscle, operations if need be to be made on several muscles should supercede the severing of the tendon completely.

DR. J. E. COLBURN reported the case of a brawny Irishman who had an apparent divergent strabismus due to hyperphoria. He operated and the divergent entirely disappeared.

Discussed by Drs. Jackson, Savage, Tilley, Connor, and Gardiner.

DR. A. BLITZ, of Indianapolis, Ind., read a carefully prepared paper reporting *A Typical Case of Ocular Irritation Caused by Chronic Rhinitis Relieved by Treatment of the Nasal Trouble.* In the discussion which followed, several gentlemen spoke, reporting interesting cases of this character.

The work of the Section having been finished, DR. FROTHINGHAM thanked the gentlemen who had so efficiently helped to make the meeting successful, both by the careful preparation of papers and by participation in the instructive discussions which in every case followed the reading of the papers.

On motion, a vote of thanks was tendered to the President and Secretary of the Section, and to the reporter of THE JOURNAL.

A vote of thanks was tendered to the Committee of Arrangements for their kind attentions in procuring such excellent rooms for the meetings of the Section, and the thanks of the Section of Ophthalmology was tendered to the Casino Club for allowing the use of their beautiful rooms for this purpose.

The meeting then adjourned.

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

M. M. Germain Sée and Laborde on the Utility of the Exclusive Administration of Alkaloids extracted from Plants—Dr. Bouilly defends the Use of Pessaries—Dr. Mossé on the Re-plantation of Bones removed by the Trephine—An anonymous writer in "The Scalpel" on the Hæmostatic Action of Cocaine—Dr. Doyon on the Action of Bromide of Potassium.

With reference to the debate that lately took place at the Academy of Medicine, M. M. Germain Sée and Laborde maintained the utility of the exclusive administration of alkaloids extracted from plants. The immediate principle, they say, is always *one*, identical in itself, invariable in its proper constitution, as in its fundamental, physiological and medicamentosis action, the total matter which contains it is complex, variable in its composition as it is in its effects. Apropos of this subject, a writer in the *Gazette Hebdomadaire* remarks that while it may be admitted that the preparations taken from plants may contain divers alkaloids, it is precisely because the matter extracted from a plant is variable in its composition that its effects differ from the action exercised by a single alkaloid. As successively stated by M. M. C. Paul, Trasbot and Gariel, chemical analysis has not isolated, and never will isolate all the active principles which a plant contains. The latter contains not only crystallizable substances, but also soluble substances, and if it becomes possible to isolate all, it will still be difficult to combine and associate them to produce the therapeutic effect obtained in employing the plant itself. It may therefore be concluded that digitalis is an excellent medicament and which produces effects very different from those which are produced by digitaline, that the extract or the tincture of aconite should be preferred to aconitine, that, in children it would be very dangerous to substitute emetine for ipecacuanha, in a word, the medical practitioner should know how to formulate, that is to say, in combining and associating the divers medicaments of which a long experience has demonstrated the efficacy. In illustration of the inconveniences of alkaloids, I may here cite the researches of Dr. Alfonso Montefusco, published in the *Giornale di Clinica*, in which the author states that scillitine has no diuretic property. It determines a diminution in the force and in the frequency of cardiac contractions as well as a lowering of the sanguineous pressure. Injections of this substance diminish the frequency and the force of the respiration. It has no action whatever on sensibility and on motility.

At the Société de Chirurgie Dr. Bouilly defends the use of pessaries and tried to prove that they are useful and that they are not dangerous. He would not, of course, defend the employment of those enormous pessaries that were formerly in use, but he would willingly adopt instruments, whether malleable or not, which, are made to measure, and which adapt themselves to the parts to which they are applied, such for instance the pessaries of Hodge and of Smith. Dr. Bouilly thinks that they are clearly useful in simple, mobile, retro-deviations. and that it would be dangerous not to maintain the uterus in position. Between doing nothing on the one hand, or practicing Alexander's operation on the other, which does not often produce satisfactory results, there is a treatment to institute, and that is that of the application of a pessary. Dr. Bouilly had already collected 84 cases of retro-deviation in which he employed this instrument and which always proved satiefactory. But to apply the pessary reduction must first be effected, either by the genu-pectoral or knee-and-chest position, or by the method of Schultze. In these conditions an instrument of good dimensions reëstablishes the cul-de-sac of Douglas, the portion of intestine that was displaced will resume its normal position, and in directing the attention of the patient to the necessity of not allowing the bladder to get full, of avoiding shocks, pregnancy may take place, or the maintenance of the uterus in proper position may be obtained in eight or nine months of treatment. The danger is *nil* when the pessary is well applied, and accidents may occur only in cases where the instrument is too large, ill-chosen and badly applied to a womb imperfectly reduced. Only once did M. Bouilly see an ulceration in the posterior cul-de-sac, and it was healed up in a few days. It is, of course, understood that the posterior adhesions are a contraindication. M. Pozzi supports the opinion of M. Bouilly. M. Terrier

thinks that this question might be discussed for a long time, it is to experience that the demonstration of the fact must be left. As far as he is concerned, without having applied as many pessaries as M. Bouilly, he thinks that this instrument is without any action, unless it acts by auto-suggestion analogous to a case he had reported at a previous meeting.

Dr. Mossé, of Montpellier, has published a note on the re-plantation, practiced with success, of fragments of bones removed by the trephine. These operations had been performed on rabbits, dogs and monkeys. The experiments consisted: 1. In re-plantations, on the same animal, of a rundle of the skull removed by trephining. 2. In the transplantation on an animal, of the same species, of a rundle of bone removed from the first subject. 3. In the transplantation on an animal of a different species. In all these experiments the crown of the trephine was applied to the bone, the periosteum of which was scraped and turned over with the skin, without any precaution being taken to preserve the periosteum itself. After having replaced the bony rundle in position, the soft parts were simply reunited above the rundle by points of suture. After a certain time the animals were sacrificed, and it was found that in the greater part the osseous rundles were soldered to the neighboring tissue. These experiments had been practiced on man by Ewen, Barrel and Horsley. The results obtained by these experimenters would authorize one to think that a rundle trephined is susceptible of being grafted in the place it occupied before its removal.

An anonymous writer in the *Scalpel* on the hæmostatic action of cocaine, remarked that, for the last three years he had recourse to the subcutaneous injections of the hydrochlorate of cocaine to produce local anæsthesia, that after these injections there was no hæmorrhage, or at least the flow of blood was less than when he did not employ cocaine. From this fact the idea struck him that it would be a useful means against excessive hæmorrhages, which are sometimes difficult and long to arrest. With the view of correcting the flow of blood, the author tried the direct application to the bleeding surface, of pads of charpie imbibed in the following solution: Hydrochlorate of cocaine, 1 gram, alcohol, 5 drops, laurel-cherry water, 5 grams. He sometimes applied the powder of cocaine to the wound, at others he employed a subcutaneous injection of the same substance, in the neighborhood of the seat of hæmorrhage. The first mode of application succeeded in rapidly arresting a severe attack of epistaxis. Suppositories containing from 15 to 20 centigrams of cocaine have always succeeded in arresting persistent oozing of blood. Commenting on this note, Dr. Fano, in the *Journal d'Oculistique*, observed that this latter dose of cocaine is not without danger. It is well known with what facility and rapidity is accomplished the function of absorption in the rectum.

Dr. Doyon, writing on the accumulation of the bromide of potassium in certain organs, states that this salt preferably accumulates in the central nervous system, which is not surprising, as it exercises its physiological action particularly on the nervous centres. It is found also in large proportions in the liver. A. B.

LETTER FROM SAO PAULO, BRAZIL.

(FROM AN OCCASIONAL CORRESPONDENT.)

Yellow Fever—Unprecedented Severity of Epidemic of 1889—Can true Yellow Fever pass the Coast Range and become Epidemic in the Uplands of the Interior?—Influence of bad Sanitary Conditions—Does Freire's Inoculation of the Attenuated Microbe Protect?—Sudden Deaths—Beriberi.

It is quite certain that since the epidemic which devastated Memphis in 1878, nothing has happened in the history of yellow fever so severe as that which has decimated Santos and Camfinas this year.

The epidemic in Rio de Janeiro presents few new features, and the frequency with which the city is visited by yellow fever, its commercial importance and rapid and frequent communication between it and the States, place the matter within easy reach of your readers. Not so with Santos and Camfinas.

Santos is, after Rio, the most important of the coffee ports. A city of about 20,000 souls, situated just within the tropics, it is almost entirely surrounded by water; in fact, at high tide it is completely surrounded by the sea. The business part of the city is but little above the tides and is cut off from the sea breeze by Mt. Serrate, a high point within the city limits. Some years ago drains were constructed under the streets to carry off the rain-water, but there is no system of sewers. During the last few years permission has been granted to householders to connect their privies and house service with these loosely built mains. No precautions whatever have been taken in the way of tide flaps on the lateral pipes, so that the incoming tide, which flushes the drains of the lower part of the city, carries back the accumulated filth, forcing poisonous gases back into the tide drains. The soil has become thoroughly impregnated with fæcal matter, as the bricks at the bottom of the drains are laid without mortar. The city is supplied with drinking-water from the neighboring mountains, of excellent quality, but in quantity inadequate to the demands of the city. The present season has been noted for the almost total absence of rains, the heat has been intense and continued, for weeks and weeks, often reaching 36°C. in the shade and 54° in the sun. Under

these conditions it is not strange that yellow fever should make its appearance, particularly as the streets and tenements of the city have been full of the poorest class of Italian immigrants for months.

On the 14th of January a man who had not been out of the city was seized with yellow fever and died. From this case and date the disease spread over the city. Several cases about this time were landed from foreign steamers, and were taken to the hospital and died, but it is true that the first case *was not imported and had not been in contact with foreign shipping*. Early in February the inhabitants began to abandon the city, so that during the height of the epidemic not more than 10,000 or 12,000 remained. The deaths in the city, so far as can be ascertained, from January 14 to date, have been 1,238. This does not include those who died outside of the city who had been exposed before leaving.

It is difficult to estimate the proportion of deaths to the number attacked. At one time at least one-third of the whole population was prostrated with some kind of fever. As nearly as I could judge by visiting the hospitals and accompanying some of the most prominent physicians in their private practice during the height of the epidemic, about 40 per cent. of all the cases were different types of malarial fever.

The most striking feature of the epidemic both in Santos and Rio was the great frequency of sudden deaths, falling down in the street, becoming unconscious and dying in from two to eight hours. The native doctors call these cases of "*accesso pernicioso*"—pernicious attacks.

In the confusion and panic incident to an epidemic like the present one it is almost impossible to get at the real facts. The exact character of these cases "*fulminantes*" has not been determined; whatever it may be it is clear that it is *not* sunstroke, as these cases are strictly confined to the places where yellow fever is epidemic.

In the early days of the epidemic it was difficult to organize the medical or sanitary service. Temporary hospitals were opened, but, with the overworked doctors and entire absence of nurses, they were little more than convenient places to die in. In the public hospitals the death-rate was something fearful, probably 80 or 90 per cent.

So far as treatment was concerned it was mostly palliative. The physicians are divided into three classes: those who gave quinine in all cases, those who discriminated carefully between yellow and malarial fever and who never gave quinine in the former, and those who treated symptoms only. The treatment employed in the Garcia Hospital, at Havana, was tried with fair success by Drs. Miranda de Azevedo and Henchel. The influence of order and perfect organization under good conditions was strongly accentuated in the Portuguese Hospital; which, by the way, is a model hospital under the very best of direction. Here Dr. Furtado lost only about 10 per cent. of the yellow fever cases. This physician does not use quinine in any stage, but after the preliminary treatment relies on alkalies and salicylate of soda, followed by perchloride of iron and iodine.

The disease at Santos and Rio has nothing particularly new about it, presenting about the same features as are found in the sweeping epidemics of our own country. But the outbreak at Camfinas is altogether new.

CAMFINAS.

This city is situated on the first plateau of Brazil, 2,250 feet above sea level and 160 kilometres from the coast in a straight line. It is somewhat lower than the range of mountains that separate it from the coast. The city is in a sort of basin surrounded on three sides by low hills. The population is estimated at 20,000. The houses are built without any attention to requirements of health, and in the poorer quarters crowded with Italian emigrants, six, seven and eight families often occupying the same house. There is no attempt at drainage, each house having its own privy vault, often only a shallow excavation in the back yard in close neighborhood to the well. The cemetery is situated on the brow of the hill just above the town, and in the soft, porous earth it is fair to suppose that the wells get the full benefit of it. The heat in Camfinas is quite as intense as in Santos, the absence of rain more sensible because of the absence of the ocean or any other body of water. Under the old theory that yellow fever is a coast disease Camfinas would be safe from its ravages—but in spite of all theories it is true that it has this year been swept by the most destructive epidemic of yellow fever of which we have any account during the last half century.

On the 9th of February a German woman arrived in Camfinas from Santos with yellow fever and died in a Swiss bakery boarding-house. Within fifteen days the persons who slept on the mattrass upon which the woman had died were taken sick and died also. The family nearly all died, and many of the customers of the bake-shop. About the same date a child was taken ill with what was supposed to be a bad type of bilious fever, in a house in which ten months before two persons had died of yellow fever contracted in Rio. The child died, and a competent physician pronounced it a case of genuine yellow fever. It is true, at all events, that other members of the family were taken down and died. From these two points the disease spread in widening circles until new foci were established in different parts of the city, spreading in time to every corner of the place. Violent discussions arose among the physicians as to the real character of the disease — some classified it as typhus, others as the black plague, others as the ictero-hæmor-

rhagic fever of the East. In the early days of the epidemic the clinical features of the disease were quite different from those of the fever raging in Santos. The temperature curves more abrupt, complete jaundice supervening on the second day, the thermometric record showing distinct intermissions, frequent cases of new invasion after entering upon a free convalescence, apthous sores in the mouth, rapid pulse, violent delirium, etc. —still showing many of the characters of yellow fever: the suddenness of the onset, the lumbar pains, the flushed face, injected eyes, and redness of upper thorax, tendency to hæmorrhage. Here and there, however, a clear and almost typical case of yellow fever was found. Very soon the large majority of the cases became unmistakably yellow fever. *Pari passu* with the development of the epidemic the ordinary malarial fevers began to assume a grave character, so that I would venture to say that 30 per cent. of the cases pronounced yellow fever were grave cases of remittent fever. I saw two such cases myself, both of which recovered, but one of which was attacked by genuine yellow fever afterwards. It was noticed that however severe an attack of either type of fever was, it conferred no immunity from the other.

The flourishing city was almost entirely abandoned; business was suspended and the inhabitant, including many of the physicians, fled for their lives, until not more than 3,000 remained, and neither medical advice, medicine, nor food could be had in the city. People who were recovering from the fever actually died of starvation. It seemed like one of the cities described in the times of plague in the middle ages. Soon, however, São Paulo went to the rescue. The provincial and the general government sent relief committees with supplies of food, medicines and nurses, and a systematic course of disinfection was instituted under Dr. Araujo Goes, who had been entrusted with the same work by the general government in Santos, aided by a corps of volunteer medical students from Rio. The epidemic reached its *auge* in April. During this month there were 893 deaths out of a population of not more than 3,000. The death-rate among the poorer classes was something frightful. I saw in one of the small tenements seven persons sick on three beds, in a room without a window, all Italians recently arrived.

BELEM DO DESCALVADO.

At this point, 350 kilometres from the coast, and 2,200 feet above the sea level, has up to date lost seventeen citizens from yellow fever, starting from a case which came from Camfinas. These cases are pronounced genuine yellow fever by physicians who are well acquainted with the disease; characterized by black vomit, jaundice, anuria and death. This city has the same unsanitary privies and wells in close contiguity and has been visited by the same heat and drouth. Its mean temperature in ordinary years being 20° centigrade. It has a mean during March and April of 30.5° centigrade.

RIO CLARO.

This city is 240 kilometres from the coast, and 614 metres above sea level. It has a population of 7,000, and is barely free from malarial fever, and has no system of sewers, but relies upon private sanitation; as usual, wells and privies are near neighbors. Yellow fever was brought in by the refugees from Camfinas and spread to the inhabitants. There have been twenty-three fatal cases among people who have not been out of town.

LIMEIRA.

Two hundred kilometres from the coast, 542 metres above sea levels, having last year a mean of 20.06° during March and April. This year an average temperature of 30° (centigrade) during the same period without rain. Fever was imported from Camfinas and spread to the inhabitants. Sanitary arrangements wretched as usual.

Now, while no one thinks that bad water, filthy privies, or bad drains, create or spread yellow fever, as numerous striking cases might be cited to prove that the disease was in the air, and carried by the air or by some solid substance, such as clothing, etc., still the conditions created by these bad sanitary elements contribute in some way to its getting a foothold, *as under the same climatic influences* the same conditions of heat and *absence* of moisture at the same altitude the disease has not obtained a foothold whenever and wherever the sanitary conditions were good.

This city of São Paulo, being only 40 miles from Santos, and receiving nearly half of its population as refugees, many of them arriving with yellow fever and dying here, having besides 12,000 Italian emmigrants, recently arrived in Santos, and brought here after exposure to yellow fever, and many of these with the disease already developed, crowded into close quarters, has not had a single case of yellow fever that was not brought here from Rio or Santos.

Why this immunity? You must pass through São Paulo to get to Camfinas. Why should this disease pass São Paulo with a population of 50,000, and make its headquarters in Camfinas and the cities beyond? It is because these cities are clean, well drained and well supplied with pure water, and, in the case of São Paulo, well paved with clean granite.

There are numerous other points in the neighborhood of Rio that have been attacked by yellow fever, but while above the mountains they are in direct communication with an infected sea port by a water course. Such infections are not rare in the history of yellow fever epidemics,

but Camfinas, Limeira, Rio Claro, and Belem do Descalvado are out of the yellow fever range and form a new chapter in the history of the disease.

Dr. Domingos Freire came to Camfinas personally to superintend the inoculation of the people with his attenuated virus of yellow fever. Being obliged to return to Rio by the duties of his position, he left Dr. Angelo Simões in charge of the service. Up to the 7th inst., according to letter published, he had inoculated 630 persons, of *whom only three had been attacked*, and then in a mild form. The names and residences of these persons are recorded in the city offices, and are open for inspection and study.

In Santos, Dr. Barrata, a colleague and fellow professor of Dr. Freire, inoculated several hundred, chiefly among the foreign element, before the worst of the epidemic, and I am informed by reliable physicians, residents in Santos, that only a very insignificant number of those inoculated by Dr. Freire's method had yellow fever. These are significant facts in centres where, to escape an attack of the disease is the rare exception, and to have it, the rule.

Whatever may be said of the merits of Dr. Freire's attenuations from a scientific standpoint, these facts have a commercial significance not to be ignored. Whether he has found the microbe of yellow fever or not, or whether the fluid he injects contains the attenuated microbe or not, if it prevents yellow fever, or even if a large percentage of those inoculated escape in times of such sweeping epidemics as that of 1889, it deserves to be carefully investigated. Dr. Freire courts investigation. He, at least, has what is not always to be found among scientists, the courage of his convictions.

He seeks out the disease during dangerous epidemics, and in the face of his most determined opponent (Dr. Araujo Goes, who was sent by the government to Santos and Camfinas) makes the test fearlessly.

It is to be regretted that the gentleman who was sent out here by our government to investigete Dr. Freire and his method, could not have selected this season of the year for his studies, when yellow fever can always be found, and Dr. Freire is always at home.

So far as we can see in the scientific journals of the world that reach this distant point, Dr. Freire is on the top with his germ.

A disease which is rapidly coming into prominence now that the yellow fever excitement is subsiding, is beriberi, which, if it keeps on at the present rate, will before the year closes have a larger death roll than yellow fever. It is now almost epidemic in the prisons of the large coast cities, and also among the seamen of the marine.

S. Paulo, May 28, 1889.

NECROLOGY.

Henry F. Crain, M.D.

Henry F. Crain, M.D., a native of Walpole, N. H., was born September 22, 1810, the eldest son of Dr. Eleazer and Sarah Crain. At the age of 5 years his parents left Walpole and settled in the flourishing village of Springfield, Vermont, where he passed the greater part of his life. His father, a noted physician, pursued the study and practice of medicine and surgery during the remainder of his life, his death occurring in his 60th year.

H. F. Crain, after being well advanced in the common schools, completed the study of letters in the Springfield and Chester academies. Having decided to make the study of medicine and surgery his life work, he, under the able tutelage of his father and Dr. Amos Twitchell, of Keene, N. H., entered Dartmouth Medital College, attended the usual course of lectures, and was prosector to the professor of anatomy. He graduated, and commenced practice with his father in 1837. In 1838 he went to central Pennsylvania, where he practiced four years.

Having paid especial attention to gynecology, and believing that some mechanical design would be beneficial in the treatment of many cases of female complaints, he, in company with his father, invented the then famous spino-abdominal supporter, and for seven years manufactured and sold them to physicians and druggists; traveling in the eastern, middle and many of the western and southern states.

In 1849 he returned to Springfield, resumed the practice of medicine, and continued in active practice till 1882, when he removed to Rutland, Vermont, where in company with his son, Dr. M. R. Crain, by his ripe age, long experience, professional bearing, ready speech and affability of manners, he soon gained the confidence of a large and influential class of patrons, among whom he was appreciated to an extent seldom gained in so short a time.

He rarely neglected the wants of the sick, and was ever ready to alleviate the sufferings of his patients. Carefully investigating and diagnosing disease, he was prompt in the use of remedial agents.

He died March 16, 1888, after a protracted sickness, of eczema, complicated with disease of the heart. At the time of his death he was a member of the American Medical Association, Vermont State Medical Society, Rutland County Medical and Surgical Society, Rutland Medical Club and Connecticut River Medical Society.

In the death of Dr. H. F. Crain, the profession sustains a loss not easily repaired, the loss of one, who, during his long professional life, held strictly to the high dignity of the profession as taught and practiced in our regular schools and

colleges, never wavering from the true principle of medical ethics, discarding quackery, whether within or out of the profession. He was a critical observer of men and measures, of strong convictions, studious in keeping pace with the improvements in remedies or mechanical inventions for the better treatment of disease, testing every new element, giving rational reasons for approval or rejection. He had in his library books for reference from the most approved authors, foreign as well as American, of which he evinced a thorough knowledge, duly appreciating the great responsibility resting upon the profession which he so long and faithfully honored. S. H. G.

MISCELLANY.

NEW YORK STATE MEDICAL ASSOCIATION. — The seventh special meeting of the Fifth District Branch of the New York State Medical Association will be held in Port Jervis, Orange Co., N.Y., on Tuesday, Aug. 27, 1889. For those who are willing to spare the time after the meeting, a beautiful and interesting carriage drive of seven miles along the Delaware river to Milford, Penna., is promised. All are urged to make an effort to attend this meeting as the following Committee of Arrangements are making every preparation to insure an interesting meeting, both scientifically and socially :

Drs. J. H. Hunt, of Orange Co., Chairman ; W. B. Eager, of Orange Co.; M. C. Connor, of Orange Co.; T. W. Bennett, of Sullivan Co.; W. H. DeKay, of Sullivan Co.; J. A. Munson, of Sullivan Co.

W. T. LUSK, M.D., President.

E. H. SQUIBB, M.D., Secretary,
P. O. Box 94, Brooklyn, N. Y.

HEALTH IN MICHIGAN, JUNE, 1889.—For the month of June, 1889, compared with the preceding month, the reports indicate that pneumonia, tonsilitis and influenza, decreased in prevalence.

Compared with the preceding month, the temperature in the month of June, 1889, was higher, the absolute and relative humidity and the day and night ozone were more.

Compared with the average for the month of June in the three years, 1886–88, inflammation of kidneys was more prevalent, and cholera morbus, measles, and inflammation of bowels were less prevalent in June, 1889.

For the month of June, 1889, compared with the average of corresponding months in the three years 1886–'88, the temperature was lower, the absolute humidity was about the same, the relative humidity was more, and the day and night ozone much more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of June, 1889, at 23 places, scarlet fever at 37 places, typhoid fever at 16 places, and measles at 19 places.

Reports from all sources show diphtheria reported at 1 place more, scarlet fever at 11 places less, typhoid fever at 6 places more, measles at 4 places less, than in the preceding month.

LETTERS RECEIVED.

S. A. Brewster, Creston, Ia.; Battle & Co., St. Louis, Mo.; Dr. S. Thompson, Toledo, Ia.; Dr. R. M. Wycoff, Brooklyn, N. Y.; Dr. G. H. Grant, Hanover, Ind.; Dr. R. C. Kedzie, Agricultural College, Mich.; Dr. James H. Buckner, Cincinnati, O.; Dr. Henry O. Marcy, Boston, Mass.; Dr. L. G. North, Tecumseh, Mich.; Dr. J. B. Hamilton, U. S. M. H. S., Washington; Dr. Thos. H. Manley, New York ; Dr. Irving C. Rosse, Washington ; Dr. Robt. Newman, New York ; Dr. G. W. McCaskey, Fort Wayne, Ind.; Dr. John N. Hess, New Marion, Ind., Drs. Pease & Jones, Concordia, Miss.; Dr. S. T. Armstrong, U. S. M. H. S., Washington ; Dr. Thos. W. Kay, Scranton, Pa.; Dr. R. Harvey Reed, Mansfield, O.; Dr. A. B. Hirsh, Philadelphia ; Dr. D. Colvin Hyde, Clyde, N. Y.; Dr. E. M. Marbourg, Hudson, Wis.; Dr. Maris Gibson, Wilkesbarre, Pa.; Dr. M. Abel, Providence, R. I.; Dr. L. P. Bush, Wilmington, Del.; Dr. C. E. Winslow, Alberquerque, N. M.; Dr. A. Nash, Joliet, Ill.; Dr. S. C. Plummer, Jr., Beaver Creek, Minn.; Dr. Thos. Elliot, Worth, Texas ; Fairchild, Bros. & Foster, New York ; Dr. E. A. Christian, Pontiac, Mich.; Dr. O. T. Maxson, So. Evanston, Ill. ; Dr. R. S. Knode, Omaha, Neb.; Dr. P. O. Hooper, Little Rock, Ark.; Dr. S. N. Sims, St. Joseph, Mo.; Dr. A. B. Newkirk, Falls City, Neb.; Parke, Davis & Co., Detroit, Mich.; Dr. H. O. Knoll, New York ; Dr. E. Fletcher Ingals, Chicago ; Dr. D. W. Prentiss, Washington ; Dr. William H. Morrison, Holmesburg, Pa.; Dr. G. C. H. Meier, New York ; Dr. C. S. Wood, New York ; Dr. C. F. McGahan, Chattanooga, Tenn.; Dr. S. J. Jones, Chicago ; Dr. James Orne Whitney, Pawtucket, R. I.; Dr. R. J. Dunglison, Philadelphia ; Dr. Howard Morgan, Westerly, R. I.; Dr. H. V. Sweringen, Fort Wayne, Ind.; Dr. J. B. Pellet, Hamburg, N. J.; Dr. J. F. Snider, Monroe Center, Ill.; Lorin F. Deland, Boston ; Health Restorative Co., New York ; Dr. J. M. Bessey, Denver, Col.; Dr. E. R. Squibb, Brooklyn, N. Y.; Rev. Wm. R. Scott, Sterling, Kan.; Dr. Charles F. Southwood, Monroe, Mich.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from July 13, 1889, to July 19, 1889.

Capt. Louis Brechemin, Asst. Surgeon U. S. A., ordered to Illinois National Guards, near Springfield, Ill., during remaining portion of encampment. Par. 1, S. O. 159, A. G. O., July 12, 1889.

Lieut. R. R. Ball, Asst. Surgeon U. S. Army, is granted leave of absence for fifteen days. Par. 3, S. O. 87, Dept of the Missouri, July 9, 1889.

By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted Capt. H. G. Bunton, Asst. Surgeon, in S. O. 22, January 26, 1889, from this office, is further extended two months on account of sickness. Par. 1, S. O. 162, A. G. O., July 16, 1889.

F. J. Ives, Asst. Surgeon U. S. Army, now at Ft. Lyon, Cal., will proceed to camp near Oklahoma City, I. T., and report to the commanding officer for duty, relieving Capt. W. C. Gorgas, Asst. Surgeon, who, when so relieved, is authorized to avail himself of the leave of absence granted him in par. 2, S. O. 84, c. s., Dept. of the Missouri. Par. 1, S. O. 87, Dept. of the Missouri, July 9, 1889.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Five Weeks Ending July 13, 1889.

Surgeon C. S. D. Fessenden, to proceed to Cairo, Ill., on special duty. July 8, 1889.

Surgeon W. H. Long, granted leave of absence for twenty-eight days. June 18, 1889.

Surgeon H. W. Austin, to proceed to Cairo, Ill., on special duty. July 8, 1889.

Surgeon Fairfax Irwin, granted leave of absence for ten days. July 6, 1889.

P. A. Surgeon F. W. Mead, granted leave of absence for thirty days. June 24, 1889.

Asst. Surgeon G. M. Magruder, relieved from duty at Baltimore, Md.; to report to the Supervising Surgeon-General for duty as acting Chief Clerk and attending surgeon. July 10, 1889.

Asst. Surgeon H. T. Goodwin, granted leave of absence for thirty days. July 8, 1889.